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ORIGINAL ARTICLES.

HEART-DISEASE OR KIDNEY-DISEASE?[1]

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I HAVE myself so often been mistaken in the first conception formed of the relation between a combination of symptoms for which heart or kidney may be responsible, and have so frequently had occasion to share the difficulty with others, that I have been forced to give the matter some thought; and it seemed to me that so practical and important a subject might also be interesting to the members of this Society.

The difficulties met under these circumstances will, I think, be better appreciated by the brief story of four or five illustrative cases:

CASE I.—O. E., a shop-girl, aged fourteen, was admitted to the Hospital of the University of Pennsylvania, October 31, 1892.

Her mother is said to have had heart-disease, but the family history is otherwise negative. The patient herself had measles in childhood, but, with this exception, reported no illness until that for which she sought admission. This set in apparently only three weeks previously, when she noted that her legs were swollen. Shortly after this she became short of breath. She continued, however, to perform the duties of her position up to the time of her admission to the hospital.

On admission her appearance was most striking. A lustrous pallor pervaded her entire body—in fact, she presented the characteristic waxy hue of chronic renal disease. Her feet and legs were much swollen, as were also the right hand and face. To a less degree she was everywhere edematous, though more so on the right side, on which she mostly lay. The urine was dark-hued, had a specific gravity of 1030, was loaded with albumin, and contained numerous granular casts.

My colleagues, as well as myself, all said: a "typical case of renal disease." The urine-examination seemed scarcely necessary. The diagnosis could be made at a glance. As a matter of course, however, her heart was also examined. The apex-beat, in the third interspace, was forcible and rapid, from 108 to 120, while the respirations numbered from 40 to 43 in the minute. On palpation, a cardiac thrill, systolic in time, could, in addition, be appreciated.

Percussion determined the upper border of cardiac dulness to the left of the sternum, at the superior edge of the third costal cartilage; the right border one inch to the right of the right margin of the sternum. There was, therefore, enlargement of the right side of the heart, as well as of the left. There were the signs of pleuritic effusion on both sides. Auscultation recognized a double murmur, most intense at the apex, with the systolic portion conducted into the axilla.

Here was then a case of mitral disease—regurgitation, and probably stenosis, with right-sided dilatation; but the intense waxy appearance and the pronounced albuminuria led us to believe that there was also positive renal disease, probably subacute parenchymatous nephritis.

The girl was ordered absolute rest in bed, five minims of tincture of digitalis three times a day, and caffein citrate, three grains every four hours. Copious diuresis set in, and at the end of five days the dropsy was almost totally gone. The scanty urine had increased until it reached 62 ounces, while the albumin and the casts had entirely disappeared. The change was almost incredible. I had never seen such a striking one in so short a time. The mitral murmur continued, showing that the heart-disease was the permanent one, and the idea, almost irresistible at first, that there was some special form of renal disease, independent of the passive congestion due to the cardiac disease, was dissipated.

She remained in the hospital until December 24th. Once there was a return of the albumin and a few granular casts, concurrent with an attack of bronchitis, but these again disappeared, and she was discharged seemingly quite well. The diastolic part of the double mitral murmur finally also disappeared, and the heart had been restored to its original dimensions, but the mitral systolic murmur continued, and is likely to be permanent.

CASE II.—F. R. P., a bank-officer, aged forty-two, was seen in consultation with Dr. S. R. Crothers, of Chester, Pennsylvania, on November 19th, 1892. With the exception of typhoid fever, ten years before, and an attack of influenza in December, 1891, he had never been seriously ill. About one year previously to his visit to me he first began to have attacks of palpitation of the heart and shortness of breath, with headache. He was treated for "functional trouble," and improved sufficiently to return to work. In this, however, he overtaxed himself, and at the end of about two months he was again compelled to give up. Although he spent much of the summer at the seaside, there was not improvement sufficient to permit his return to business. All of this time his symptoms pointed to heart-disease, and his own belief and that of his family were that this was his principal, if not his sole illness.

[1] A paper read before the Medical Society of the State of Pennsylvania, at Williamsport, Pa., May 17, 1893.

At the date of his visit to me there were aggravated dyspnea and cough, but the headache, from which he had before suffered so much, had disappeared. There was also nausea, especially in the morning, but at times also in the day, associated occasionally with diarrhea. His complexion was intensely sallow—almost cachectic.

On inquiry, I found that his feet were a little swollen at night, but that this swelling disappeared each morning. Examination of his heart disclosed enormous hypertrophy of the left ventricle, the apex being lowered and displaced to the left. The aortic second sound was accentuated, but there was *no murmur*. The action of the heart was tumultuous, its rate frequent, and its rhythm irregular.

The urine throughout had been copious, light-hued, and low in specific gravity, until a short time before his visit, when it had become scanty and high-colored; but at the time of his visit, through the action of diluents and diuretics, it was increased to 64 ounces in the twenty-four hours. A portion of this examined by me had a specific gravity of 1012, and contained only one-twentieth per cent. of its bulk of albumin, and a small number of hyaline casts.

In this case the prominent symptoms were cardiac, in contrast with Case I, in which the most striking symptoms pointed to the kidneys as their source, and in fact were at the time caused by the renal complication. Yet the former was primarily a case of renal disease, and the latter one of heart-disease.

This is a state of affairs that supervenes on an interstitial nephritis, a gradual hypertrophy of the left ventricle, the rationale of which is not perfectly agreed upon, but which I am inclined to look upon as a compensatory hypertrophy, maintaining the individual in tolerably good health until compensation begins to fail, when the symptoms of cardiac distress described set in, and increase until death takes place, as in this case, suddenly, from simple cardiac failure, or, as is perhaps more frequent, from uremia.

In this instance, therefore, a case of primary renal disease was overshadowed by cardiac symptoms in so marked a degree as to cause the latter to be overlooked.

CASE III.—A. G. B., a retired merchant, aged sixty-two, consulted me first on the 16th of April, 1892. He had a clear family history of gout, his father having been gouty years before his death, and dying suddenly. The patient himself had been subject to attacks of gout for a number of years, and had tufaceous deposits in his knuckles. He had an attack of influenza in the early part of 1890, and another in May, 1891; but during the year previous to his consulting me he had been more than usually exempt from gout.

Albuminuria was discovered by Dr. Pepper in May, 1891. Following this the patient spent the summer in Europe. While in Europe the albumin disappeared, and continued absent until a few days before he consulted me, when its presence was discovered by his son, a medical man. He also noted at this time a little dyspnea on exertion, but with these exceptions felt as well as usual. His last evident attack of gout was on board ship, in the autumn, while returning from Europe.

At the time of his visit to me, in April, 1892, I examined his urine, morning and evening samples. Each contained one-tenth of its bulk of albumin, but I found no casts in either sample. The morning urine had a specific gravity of 1016; the evening, of 1014. I concluded promptly that I had to do with a case of chronic interstitial nephritis of gouty origin.

In June, following his visit to me, the patient again went to Europe, and returned late in September, 1892. He had a couple of slight attacks of gout during his absence, and a little oppression in breathing on shipboard, so that he had to sit up in his berth. During the month of June there was some irregularity of action of his heart, which he ascribed to flatulence. With these exceptions, he considered his health even better while in Europe, in the summer of 1892, than in the previous summer.

On November 21, 1892, he again consulted me. He complained of flatulence, and of what he termed wind pressing on his heart. This prevented him from lying down in comfort. He also thought that it caused cough. On the day before his visit he first noted a little swelling of his feet.

I now examined his urine again. It was dark-hued, contained one-tenth of its bulk of albumin, and this time I found a few hyaline casts. There was also a little swelling about his ankles, and auscultation disclosed an evident mitral systolic murmur. I prescribed rest at home (he had been attending to some business), salicylic acid, pepsin, and aromatic powder for the flatulence; also hot water before meals; and for the dropsy, a pill containing digitalis, quinine, squill, and nux vomica. In a few days the edema had disappeared, and the dyspnea was partially relieved. A few days later both symptoms returned, and although again relieved for a time, they proved ultimately intractable. There was dulness to the right of the sternum. Evidently the right ventricle was yielding. The urine became more scanty, the albumin increased, as also did the casts, and the patient died suddenly December 20th.

CASE IV.—John W., a colored laborer, fifty-two years old, was admitted to the Hospital of the University of Pennsylvania, April 18, 1893. His family history was negative. He had had a bad attack of typhoid fever thirty-five years ago. Eight years ago, while working in a brick-yard, he suddenly fell, and was unconscious for about four hours. With returning consciousness came unimpaired muscular power; but four years later he awoke one morning completely paralyzed on his left side, without any evidence of anything else happening in the night. At the end of three days, however, he began to regain power in the arm and leg of the affected side, and in three months was able to move around with the aid of a cane. His condition in this respect has

been improving steadily, but two years ago he noted that he was short of breath, and last winter this symptom grew worse, while edema of the legs was superadded. These symptoms finally became so aggravated that he entered the Philadelphia Hospital, whence, after six weeks, he was discharged, greatly relieved.

Two weeks previously to admission to the University Hospital he again became ill, the chief symptoms being enormous swelling of the legs, orthopnea, and a dry, hacking cough, very troublesome at night. On admission we noted also irregularity of the heart, hypertrophy of the left ventricle, and an easily recognizable mitral systolic murmur. There was also the remnant of the left-sided paralysis, and on this side the edema was much greater than on the right side. There were the signs of effusion in the left pleural sac, and the percussion-boundary of the liver indicated some enlargement.

The urine was albuminous, containing one-seventh of its bulk of albumin, but no casts were found.

The diagnosis here made was mitral regurgitation, a diagnosis that was thought to be sustained by the enlargement of the liver. Treatment proved ineffectual, and the man died less than three weeks after admission.

At the necropsy there was found enormous eccentric hypertrophy of the left ventricle, with dilatation of the right ventricle, both ventricles, and especially the right, being distended with blood. The heart weighed 1000 grams, with the blood in it, 750 when emptied, the normal weight being about 337 grams. The *mitral leaflets were a little thickened, but essentially normal.* The aortic cusps were normal, as were also the valves of the right side of the heart.

There was a large effusion in the left pleural cavity, as recognized before death, and a patch of congestion in the lower part of the left lung. The liver weighed 1285 grams, and was *not*, therefore, enlarged, the normal weight being from 1550 to 1860 grams.

Both kidneys were enlarged, the right weighing 210 grams, the left 220 grams, the normal weight being from 130 to 150 grams. The cortices especially were widened, and the seat of chronic parenchymatous nephritis, which, in the light of the autopsy, I regard as the cause of the hypertrophy of the left ventricle.

I have selected, from among many cases, these four of combined cardiac and renal disease, in all of which there was, at the beginning, and in some throughout life, more or less erroneous conception of the exact state of affairs. The first case, that of the shop-girl, aged fourteen, was supposed to be a case of chronic parenchymatous nephritis, while further study showed it to be one of primary valvular disease of the heart, with secondary passive congestion of the kidney.

The second case was one of chronic interstitial nephritis, with hypertrophy of the left ventricle, in which all of the symptoms pointed to primary heart-disease, but the true nature of which was easily revealed upon closer study.

The third case was a more complex one than either of the others. An ancestry of gout; a personal history of much gout; an albuminuria, at first small; absence at first of casts, and then sparse casts, all pointed to gouty kidney, a supposition by no means weakened by the oppression and dyspnea, symptoms that almost always supervene when the hypertrophied left ventricle of chronically contracted kidney begins to fail. On the other hand, the evident mitral murmur, the moderate degree of hypertrophy of the left ventricle, the stretched right ventricle, the irregular heart, the gastric catarrh, and the dropsy, pointed to a condition of mitral regurgitation, which, I cannot but think, was also present, a view in which I was also sustained by Professor Da Costa, who saw the case with me. Yet the problem was a difficult one, and the question, "heart or kidney?" was carefully debated. It seemed to us that in this case doubtless both organs were affected independently of that interdependence that always exists between these two important organs. That is, there were interstitial nephritis and endocarditis, both the result of the same cause—gout—and the coöperation of these two conditions accounted for the intractableness of the case. Unfortunately, in this case there was no autopsy to settle the question, and it must always remain a matter of probabilities.

That such a state of affairs does occur is shown by the following interesting case:

CASE V.—C. K., a Russian coal-miner, aged twenty-eight, from Schuylkill County, was admitted to the Hospital of the University of Pennsylvania, April 12, 1893. On account of his total ignorance of English no family or previous personal history could be elicited, except the indefinite statement that his feet had been swollen for ten years, and yet that he was perfectly well up to three weeks before admission, and working in a coal-breaker.

On admission he was gasping for breath, in an unpleasant, grunting manner. His heart was extremely irregular, and at times beat so rapidly that it could scarcely be counted. It was noted soon after admission at 144, again at 166. His respirations on admission were 36; and when his pulse was 166, the respirations were noted at 46. His temperature was normal. His belly was distended with fluid. There was edema of the feet and legs—in fact, general anasarca—and he lay in such a stupid state that it was difficult to get any information from him. On admission he was expectorating a blood-stained mucus, regardless of time or place.

Physical examination revealed the liver to be much enlarged and tender; the heart not much enlarged, but acting tumultuously, and no murmur could be detected. Subsequent examination showed the right boundary of the right ventricle at the right edge of the sternum, indicating enlargement of the

right heart. The examination of the lungs, on admission, was not satisfactory, because of the extreme illness of the man, and his disgusting, filthy state. The urine was scanty, high-colored, and bile-stained. It contained only a moderate amount of albumin, from one-twentieth to one-eighth of its bulk, but numerous hyaline and pale granular casts.

Under full doses of the infusion of digitalis he improved quite rapidly, the pulse and breathing rate coming down gradually. The rhythm of the pulse also improved, and the anasarca diminished. On the 30th of April his pulse had fallen to 64, and my note reads: "Although the pulse is slow and forcible, no murmur is detectable, yet we feel sure there is mitral regurgitation." His improvement was so great that he was even allowed to sit up. On May 5th, his temperature began to rise, and concurrently his breathing to be more frequent. On the 11th the signs of fluid in the left pleura were apparent (probably had shown themselves a couple of days earlier, because, on account of difficulties, he was not examined daily). The respirations were 50, but the pulse did not rise above 108, and for the first time a distinct mitral systolic murmur was audible. On the 14th it was thought a murmur was heard, but repeated examinations, even when his heart was at its best, failed to detect anything definite until the 11th. The man died suddenly a day later.

The necropsy was most instructive. The lesions were numerous, but most interesting in this connection was the association of extreme mitral stenosis, in the shape of a button-hole mitral orifice, and a pair of typical large white kidneys, beginning to undergo contraction. There was also enlargement of the heart, more especially in the direction of the right ventricle, as recognized before death, associated with marked dilatation of the left auricle. There was a left-sided empyema of recent origin, as shown by a fresh layer of thick lymph, probably the immediate cause of death; anthracosis, or miner's lung, with cavities; an enlarged hypertrophically cirrhotic liver; an enlarged spleen with two pyoid sacs, probably softened infarcts.

The fourth case was a complete surprise in the light of the autopsy; yet I am doubtful whether, with the situation repeated, I would make a different diagnosis. The distinct mitral systolic murmur and the extreme anasarca, the scanty urine and pleural effusions, all combined to favor the idea that there was mitral regurgitation, while the fact that the man had had two seizures, best explained on the supposition of cerebral embolism, of which a cardiac embolus is the most common cause, seemed to add all that was required to make the diagnosis absolute. One symptom only might have suggested a renal origin, and that was the degree of hypertrophy of the left ventricle, without aortic disease. Mitral regurgitation, while causing hypertrophy of the left ventricle, seldom produces the extreme hypertrophy that attaches to aortic valvular disease or chronic renal disease without aortic valve disease. At the same time the extent of this hypertrophy was not appreciated before death, because of the difficulty of investigation occasioned by the naturally thick chest-walls, further thickened by anasarcous infiltration. Under the circumstances, the mitral murmur is best explained on the supposition that there was mitral regurgitation consequent upon dilatation of the hypertrophied left ventricle.

Yet, notwithstanding the difficulties encountered in the separation of heart-disease from kidney-disease, there are certain points that, if borne in mind, aid in the discrimination. These points, already referred to, deserve, in conclusion, to be recapitulated: First, the conditions most likely to be associated or confounded are mitral disease on the one hand, and chronic parenchymatous nephritis on the other, or the last stage of interstitial nephritis, when the urine, from having been copious and light-hued, becomes scanty and dark-hued, because of failing cardiac power.

Chronic parenchymatous nephritis.	Chronic interstitial nephritis. (Last stages.)	Mitral Disease.
Urine scanty and high-colored; high specific gravity; highly albuminous.	Urine though scanty is still light-hued, and has low specific gravity; moderately or slightly albuminous.	Urine scanty and high-colored; high specific gravity; moderately or slightly albuminous; rarely highly albuminous.
Numerous granular, dark granular or fatty casts.	Few casts, and these hyaline or slightly granular.	Few casts, hyaline or slightly granular.
Much dropsy.	Little dropsy as a rule, though when heart fails dropsy may be marked.	Much dropsy; effusion into serous sacs.
No mitral systolic murmur.	No mitral murmur.	Mitral murmur.
As a rule no hypertrophy of left ventricle, which may, however, be present at times.	Always marked hypertrophy of left ventricle, except in persons feeble and cachectic at the outset; this without aortic murmur.	Moderate hypertrophy of left ventricle; hypertrophy of right ventricle.
No enlargement of liver.	No enlargement of liver.	Enlarged and tender liver.
No signs or symptoms of arterio-capillary fibrosis.	Symptoms and signs of arterio-capillary fibrosis may be present.	No arterio-capillary fibrosis.
No retinitis albuminurica.	Retinitis albuminurica may be present.	No retinitis albuminurica.
No history of gout.	History of gout, lead-poisoning, or free eating and drinking.	Seldom a history of gout, alcoholism, or free eating and drinking.
Seldom a history of rheumatism; more frequent of infectious disease.	No history of rheumatism or infectious disease.	Probable history of rheumatism or infectious disease.
Uremia infrequent.	Uremia frequent.	No uremia.
Partial response to treatment.	Doubtful response to treatment.	Generally prompt response to treatment.

These points of diagnosis refer more particularly to uncomplicated cases. With complicated cases the

difficulty is greatly increased, and the decision must be one of probabilities. A fact of great value in my judgment in favor of a primary and advanced kidney-disease, is the failure of heart-tonics like digitalis to produce diuresis, even though the pulse-rate is decidedly reduced by the action of the remedy.

Now, what is the practical bearing of these considerations? I answer, not so much in the direction of therapeutics as in that of prognosis. For, happily, the treatment of these conditions is essentially the same, and to this subject I have given very full consideration quite recently elsewhere.[1] In the matter of prognosis, however, it is of the extremest importance. For in cases of pure mitral disease, not too far advanced, the most favorable prognosis may be given, as evidenced by our experience with Case I. In the stage of renal disease under consideration, however, and in the combined form with actual structural change in both heart and kidney, the prognosis is very unfavorable, and to mistake the one condition for the other, and to prognosticate accordingly, may seriously jeopardize one's reputation.

SIMPLICITY IN THE TREATMENT OF FRACTURES.[2]

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THE essential factors in the treatment of broken bones are, undoubtedly, the early replacement of fragments, the prevention of recurrence of displacement, attention to the condition of the soft parts, and due consideration of the patient's general health. After the reduction has been satisfactorily accomplished, displacement may recur through the action of gravity, muscular contraction, or the restlessness of the patient; and the surgeon must guard against such recurrence by applying some form of fracture-dressing that will retain the fragments in proper position. The best form of dressing will, as a rule, be that which corrects the tendency to displacement and, at the same time, steadies and immobilizes the limb. Special tendency to displacement varies with the line and position of the fracture, and should be recognized by the surgeon before he decides upon a form of dressing.

Fracture-dressings may be classed under three divisions: First, those that exert moderate continuous traction, or maintain the extension that was applied when the fracture was first adjusted; secondly, those that, by virtue of their rigidity or fixedness, resist retraction; and finally, those that, by virtue of their inflexibility, prevent angular or lateral displacement, by furnishing lateral support to the fracture.

These statements, which are almost axiomatic, will probably meet with the approval of all the members of the Society; but it is more than likely that, in a general discussion of the subject, there would be advocated a dozen different ways of treating the same fracture. It seems to me that surgeons often lose sight of the fact that simplicity in fracture-dressings is as much a surgical virtue as simplicity in the form of instruments used in surgical operations.

Simplicity in the treatment of fractures is often neglected because of an obsequious reverence for the names of former surgical teachers, which have become attached to a splint, or method of dressing. It is stated that legends and traditions connected with historic places never die; it is, unfortunately, true that surgical traditions have a similar lasting and often deleterious influence upon the progress of surgery. Illustrations of this are seen in the present use of Bond's splint for fracture of the lower end of the radius, an appliance founded upon an erroneous understanding of the nature of the injury, and one of the worst splints that could be used in the treatment of such a fracture. Physick's long splint for fracture of the femur is still used in this injury by many surgeons, who fail to realize that a more modern method of dressing is less troublesome to the attendant and more comfortable and safe for the patient. Desault's dressing for fracture of the clavicle has now no value except as a puzzle with which to entangle unhappy students under examination; yet it is probably still employed.

Many books are filled with elaborate descriptions of fracture-dressings, whose number seems to be limited only by the patience of the author. Hamilton's *Treatise on Fractures* is so full of these complicated splints and devices that the young practitioner must be hopelessly lost in selecting a method for treating a fracture under his immediate care. Individuals, as well as races, are born with mental characteristics that drive them to invent and advocate complicated methods in all the pursuits of life. The English and German surgeons perhaps illustrate this tendency to an extreme degree. Some American surgeons, partly from individual traits and partly from over-developed imitative faculties, are led in the same direction.

A truly wonderful illustration of this perversion of the mind is found in Bardenheuer's *Guide to the Treatment of Fractures*. I show a single illustration taken from his book in proof of my statement. Could anything be more preposterous than the

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[1] "The Relations between Renal Disease and Disease of the Circulatory System," International Clinics, vol. iv, second series, 1893. "Treatment of Chronic Valvular Disease of the Heart," Therapeutic Gazette, April 15, 1893.

[2] Read at the meeting of the Medical Society of the State of Pennsylvania, at Williamsport, May 17, 1893.

method by which a patient with an ordinary fracture of the lower end of the radius is here treated? He is shown confined to bed, with weights and pulleys attached to his arm and hand so as to make traction in five different directions. Such a method of dealing with an injury, which ordinarily needs scarcely any splint, is a travesty of modern surgery. That even an American can accept such complicated dressings is shown by a visit to the wards of some of our large metropolitan hospitals. I recently saw in a hospital in a neighboring city a patient with a fracture of the thigh. The dressing was a Physick's long splint, combined with the extension-apparatus of Buck, and I think a plaster-of-Paris incasement —that is, this afflicted patient had about as much apparatus applied for his single fracture as would be required for the treatment of three patients with a similar injury. Any one of the appliances would be sufficient for an ordinary fracture of the femur.

Physicians coming to Philadelphia are, I think, often surprised at the simplicity of the dressings used in some of our hospitals. It is certainly gratifying to know that we do work in a less complicated manner than is the case in many other cities.

Another reason for a want of simplicity in fracture-dressing is that students are often taught during their pupilage that each fracture has its special splint; hence, they do not realize that the same form of dressing, with very slight alteration, will often answer for fractures in different parts of the body. I have never forgotten an expression used by Prof. Chiene, of Edinburgh, who told me that he disliked ready-made splints, as he did ready-made trousers—they never fitted.

Few will dispute the desirability of simplicity, provided that simple measures meet the indications and fulfil the surgical objects. Simple dressings are always attainable; they are cheap, and they are usually much more comfortable to the patient than more elaborate appliances. The latter are much more liable to become displaced and cause discomfort, and their intricacies are much less likely to be understood by the patient's friends or the hospital resident. The complication also tends to make the surgeon hesitate about removing the dressing, as much time, considerable assistance, and no little skill are demanded in its replacement. For this reason complicated dressings are likely to be changed less frequently than simpler ones, and the progress of the fracture less often noted. I am quite convinced that simple appliances that are readily removed and easily adjusted tend to yield better results, because of the more frequent examination and inspection given the injured bone.

I would obtain simplicity by disregarding all the unnecessary portions of dressings, and by selecting simple articles for retaining the fragments in apposition. The primary bandage often applied to the limb before the splint is adjusted is unnecessary and sometimes harmful; it is seldom used by practical surgeons of to-day. Embrocations of lead-water and laudanum, and of similar drugs, supposed to lessen the amount of inflammation at the seat of fracture, should be discarded, as they have no potent influence upon lessening the inflammatory exudate, and may, perhaps, by maceration of the skin, lead to blebs on the surface of the limb. Proper coaptation and freedom from muscular contraction are the factors most needed in the treatment of the inflammatory condition. With omission of the primary bandage and the embrocations, which some surgeons cling to as a sort of fetich, there is nothing to be applied to the fracture but the retentive apparatus. This should be of the simplest description. The surgeon who has sufficient individuality to refuse to pay for a carved or moulded splint of metal offered by an instrument-maker will seldom have difficulty in dressing a fracture in a simple manner.

The form of displacement and the character and seat of the fracture will give a hint to an observant surgeon as to the kind of apparatus to be used. Anything that tends to maintain the proper contour of the bone after reduction is what is needed. If wooden splints are used, they should be very light and seldom thicker than the lid of an ordinary cigar-box. Heavy splints, with much padding, are uncomfortable to the patient because of their weight and heat. In most fractures comparatively little strain is likely to be thrown upon the broken bone during treatment; hence, a splint with a moderate degree of rigidity is all that is needed to prevent displacement.

There is no question that the best splints in use are those that are moulded to the limb after reduction of the fracture. These fit any inequality of the surface without padding, and can, therefore, be very light, and are worn with comfort. Moulded splints are most readily made from butter-cloth, or cheese-cloth, dipped in plaster-of-Paris, paste, or glue. They are readily prepared, and can be moulded to the form of the limb without giving the patient pain. In some cases almost no apparatus is needed, because the parts may be put in the position that places the displacing muscles at rest and that insures proper coaptation of the fragments; for example, a fracture of the fibula, in which there is very little tendency to displacement, may be treated by simple bandaging, or even this may be dispensed with, because the parallel tibia makes an efficient splint. In some fractures of the phalanges an adjoining finger or toe acts as a good splint, or the finger of a glove, made rigid, will keep the parts in good position. A little additional firmness can be given to the glove-

finger by painting it with glue or mucilage. In the same way a stocking may be used as a splint, by making it a little more rigid with starch, plaster-of-Paris, or other hardening material.

The rapidity with which plaster-of-Paris, mixed with water, solidifies makes it, by all odds, the best material for moulded splints. Felt, or gutta-percha, may be softened by dipping it in hot water, and may then be moulded to the part; but these materials are not so easily obtained as gypsum or plaster-of-Paris, which is always to be found in any country store. Strips of gauze, or other woven fabric, may be converted into excellent splints by saturating them with plaster-of-Paris and water. Eight or ten of these strips when applied to a limb soon become hard and will hold it in position. Lateral, anterior, or posterior splints of any shape may thus be made and are to be held in place by a roller bandage. The plaster-of-Paris must be kept dry, for if it has absorbed moisture it will not set. The setting may be retarded by adding a little dissolved glue or borax, or cream of tartar, or by the use of cold water in making the mixture. Setting may be hastened by the use of hot water, or by adding a little common salt to the water. It takes very little skill to cut V-shaped pieces out of the gauze and to overlap the edges when the corners are to be turned; a moderately good surgeon can make a splint of this kind fit perfectly. In compound, or open, fractures, openings can be left or made in such splints. Strips of metal, to further stiffen the splint, or metal rings, for supporting a limb, may be incorporated in the layers of gauze and gypsum.

Sometimes we can use another part of the body to maintain apposition of the fragments. Thus, in fractures of the upper part of the humerus the thorax may be used as a splint, when the arm is bound by a bandage to the chest. Fractures of the lower jaw are usually treated by using the upper jaw as a splint.

In the treatment of open, or compound, fractures less simplicity is possible in the first dressing; but the surgeon who is fully imbued with the doctrines of antiseptic surgery will usually be able to convert fractures of this kind into what are practically closed ones. Thoroughly laying open the injured regions, scraping out all particles of dirt, scrubbing the parts well with soap and water and a nail-brush, and providing for removal or asepticity of all accumulations of blood, will enable him to put a dry antiseptic dressing and a splint upon the injured extremity, with the conviction that the wound will probably go on to recovery with very little variation from the clinical course of uncomplicated fractures in the same region.

It will perhaps aid in the discussion of this subject, if I give illustrations of simple methods of treating common fractures. It will be understood, of course, that my personal preferences are shown by these illustrations; but, naturally, there are many other equally simple methods of treating the same injuries, which may be adopted by other surgeons. These descriptions necessarily refer to such fractures of bones as are ordinarily seen, and not to cases of unusual severity.

Fractures of the clavicle are usually satisfactorily treated by Sayre's adhesive-plaster dressing, consisting of two long strips of plaster, which act by drawing the upper part of the humerus backward, fixing the lower angle of the scapula, and pushing up the elbow. Fractures of the clavicle unite with less deformity, as a rule, if the patient is kept upon his back for a week or ten days, so that the scapula is held in position by the weight of the body pressing against a hard, smooth mattress. The supine position, with arm and forearm thrown across the patient's chest, usually allows the fragments to fall into proper position. Such recumbency for a few days gives a chance for the tissues surrounding the seat of injury to become more or less rigid with inflammatory exudate, and there is, therefore, less danger of recurrence of the deformity when the patient is allowed to walk about with Sayre's dressing applied to the injured region.

Fractures of the upper end of the humerus are successfully treated by putting a towel in the axilla, and then bandaging the upper arm to the side of the chest, having the forearm, which is otherwise free, carried in a sling.

Fractures of the middle of the shaft of the humerus are well managed by an internal angular splint, preferably made of gauze and plaster-of-Paris. Fractures of the lower end of the humerus are best treated with the elbow in the extended position, so as to retain the carrying function of the arm. I prefer holding the elbow in this position by a splint of wood having the obliquity of the normal axes of the arm and forearm or by means of a gypsum splint.

Fractures of the forearm require an anterior and a posterior straight splint, which should be neither too wide nor too narrow. Fractures of the lower end of the radius usually require nothing but a wristlet, or band of adhesive plaster, carried around the lower end of the bone to restrict the movements of the wrist-joint after reduction. Where there is unusual comminution of fragments a straight wooden splint, about six inches long and an inch wide, placed on the back of the wrist, is all that is required. Fracture of the olecranon demands scarcely more than a wooden splint about eight inches long and one inch wide, in front of the elbow, to prevent flexion. Fractures of the femur, whether of the neck or shaft, or above the condyles,

can generally be well treated by permanent traction, made by attached adhesive plaster and a weight fastened to a rope going over a pulley at the foot of the bed.

By altering the direction of the traction, the surgeon will find this method satisfactory in all ordinary cases. Sand-bags at the sides of the femur, to prevent displacement, or a short splint of binder's board around the thigh at the seat of fracture, is the only additional apparatus likely to be needed. Sometimes this can be omitted. For fractures of the tibia and fibula, a fracture-box, or plaster-of-Paris splints meet all the ordinary indications.

SCIENTIFIC OBSTETRICS IN PRIVATE PRACTICE.[1]

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IF one were asked the meaning of the word "scientific," a proper definition would be found in a phrase indicating the possession and dissemination of knowledge. A scientific journal is one that contains and disseminates knowledge of the subject of which it treats. Modern medicine is a science in so far as it contains valuable knowledge concerning human life and disease, and scientific obstetrics is the theory and practice of this branch of medicine, characterized by accurate knowledge.

In this one point of the possession or absence of accurate knowledge rests the difference between the obstetric practice common in the United States twenty-five years ago and the theory and practice taught at the present day. Impressed with the ability of nature to deal successfully with the emergencies of labor, the practitioner who attended obstetric cases has been wont to comfort himself with the axiom that labor is a natural process, of which he need not seek to ascertain too minutely the details. The condition of pregnancy he regarded as naturally normal, and hence without especial tendency to disease. The lying-in period was to him a natural stage in the life of the individual, and required at his hands no especial scrutiny. An accurate diagnosis as to the factors present in a given labor was rarely made, unless some serious emergency arose.

There have been many reasons for this condition of affairs. The comparatively recent discovery of anesthetics placed at the disposal of the obstetrician a means of diagnosis of inestimable value. The employment of antiseptics has rendered possible manipulations for the diagnosis and treatment of labor that formerly were impracticable. Methods of diagnosis are now commonly taught and practised that, at the period mentioned, were only to be seen in practice in the large hospitals of Europe. Modern obstetrics has, then, great advantages in its opportunities to acquire thorough knowledge of the patient and of her labor, and this, too, without the infliction of additional pain, or the incurring of added risk to life. The characteristic of modern obstetrics is its scientific element, as shown in the accurate knowledge that it requires concerning matters formerly thought to prosper inevitably through the kind coöperation of Nature.

Scientific obstetrics is the rule in the modern hospital, but it is often "honored more in the breach than in the observance" in private practice. The reasons for this are many. First, among all, is the common belief, derived largely from physicians and nurses, that, because labor is a natural process, it is bound to proceed successfully without intelligent supervision. If this is true, why should a patient tolerate palpation, auscultation, or pelvimetry; or why should she take an anesthetic when the mechanism of labor is interrupted, and a thorough examination of the condition present becomes necessary? A common belief that has descended from the days of the early craniotomist, or man-midwife, as he was termed, is that any interference with labor means, practically, the use of forceps, and hence the objection to critical examination in an emergency. Again, it not infrequently happens that a complicated labor terminates spontaneously, and apparently with success to mother and child. It does not occur to the patient and her friends that complications may have arisen, by reason of the long continuance of the spontaneous labor, that could have been avoided had intelligent interference been practised.

There is especial need for scientific obstetrics in private practice, because the practitioner is more directly responsible for the condition of his patient than when he is engaged in hospital practice. He lacks in private the experienced observation of trained nurses; he misses the intelligent coöperation of resident physicians; and experiences the great disadvantage that the absence of order and discipline, so common in a private house, entails upon him. It is, therefore, especially necessary that he gain thorough knowledge of his patient by personal observation and study, and this knowledge is the essential of scientific obstetrics. The fact that the best results in obstetric practice are observed in hospitals, draws attention to the need for scientific work in private cases.

Omitting a consideration of the minor details of private obstetric practice, we urge the importance of a thorough examination by the practitioner of all pregnant patients. We are well aware of the fact

[1] Read before the Section on Obstetrics, American Medical Association, Milwaukee, June, 1893.

that many cases are not seen by their attendants until labor is far advanced, and no opportunity has been given to examine the patient during pregnancy. This is growing to be, however, less the case than formerly, and especially in first pregnancies, when the natural dread of an untried experience brings the patient to the physician comparatively early. This scrutiny of the pregnant patient should be directed especially to ascertaining the condition of the organs of elimination, and the success attending their action. The examination of the urine should be an invariable practice, and valuable information will be given by ascertaining not only the presence or absence of albumin, but by careful microscopic study of the sediment, and also an estimation of the amount of urea excreted. In the Maternity Department of Jefferson Medical College Hospital we have for some time derived valuable information regarding a patient's eliminative powers by ascertaining the quantity of urea excreted. The presence of albumin is of itself a trifling matter, unless the microscope reveals evidence of decided structural change in the kidney.

At or after the seventh month of pregnancy it becomes the duty of the attending physician to ascertain the mother's size, and the relative size of the fetus and the position that it occupies in the mother's pelvis. This is a procedure commonly thought unnecessary, and reserved for the lectures of those who teach obstetrics. That such is not the case is well exemplified by two fatal cases, seen by me recently in consultation, in both of which embryotomy upon the dead fetus was necessary. Two well-developed male children were sacrificed to a lack of diagnostic skill on the part of the medical attendant, and to complete the unfortunate history of those two cases, the lives of the mothers were lost on account of the stupid laziness of the physicians, who neglected to use antiseptic precautions during labor. In both cases the child had perished before the consultation, and the embryotomy was performed to spare the medical attendant from reproach and criticism for his failure to deliver the mother. These four lives could have been saved had proper precautions been taken.

The practice of general medicine, including obstetrics, in country towns or villages, often taxes to the utmost the skill and wisdom of the so-called "country doctor." As a result, he has a range of experience unknown to his city brother, and becomes by natural development more assured, self-reliant, and efficient. He is the man who, above all others, can appreciate the value of any method of practice that shall add to the positive knowledge he has of his patient. We do not ask him to provide himself with elaborate or costly pelvimeters, or instruments for diagnosis, but, as is our custom in lectures at the Philadelphia Polyclinic, we do urge upon the general practitioner a knowledge and practice of palpation, auscultation, and of such a method or methods of estimating the size of the mother's pelvis and the relative size of the fetus as may be within the scope of his possibilities. No student graduates from a well-appointed medical college who is not in the possession of this knowledge, and certainly the general practitioner already established cannot afford to be behind the recent graduate in his resources. The objections urged against the examination of pregnant patients, including the measurement of the pelvis, are based upon needless exposure of the patient, or rude and unskilful manipulation. We have yet to find a private patient, of whatever station in life, who offers the slightest objection when her physician asks that he be given an opportunity to acquire a knowledge that shall the better enable him to care for his patient, particularly if, by so doing, he subjects her to no exposure, nor to tedious and painful manipulation. The abdomen of the patient may remain covered by one thickness of cotton or linen, without in the least inconveniencing the physician, and medical students under my instruction are taught to make their examinations in this manner.

One of the great advantages accompanying this mode of practice is the lessening of vaginal examinations, which are a source of considerable danger to the patient. It is perfectly possible by palpation alone to follow the head of the child as it descends through the pelvic canal and impinges upon the pelvic floor. The character and efficiency of the pains of labor may also thus be accurately observed, and oftentimes valuable assistance can be rendered by external pressure gently and judiciously applied.

When the mechanism of labor is interrupted, a thorough internal examination is at once indicated. This is often impracticable without the administration of an anesthetic. The practitioner should be prepared to interfere for the assistance of the patient. Forceps should be prepared and ready. The rectum and bladder should be emptied, and, while it is not necessary to state to the patient that an operation is to be performed, yet, while she is under the influence of the anesthetic, it may be found wise to terminate the labor. It is often impossible to accurately diagnosticate a faulty position of the head without an anesthetic, the resistance and suffering of the patient being so great that sufficient of the hand cannot be introduced to make a thorough examination. When, however, such an examination has been made, and before the examining hand has been withdrawn, the forceps may often be accurately applied to the sides of the child's head, and the labor brought to a successful termination. In other cases, version and extraction may be found neces-

sary. In either event, examination of the patient under anesthesia will spare her hours of suffering, and will often save the life of an infant, and sometimes that of the mother.

The same thoroughness in treatment should obtain in the diagnosis and treatment of injuries to the genital tract. By the term "laceration of the perineum," we understand a solution of continuity that extends more deeply than the posterior commissure or fourchet. We are aware that a laceration in the median line may extend beyond the fourchet, and still not impair the supports of the uterus to any appreciable degree. When we read and hear of large numbers of cases of labor in which no laceration of the perineum has occurred, we are impressed with the fact that those who record such extraordinary experiences either consider that a laceration of the perineum usually extends into the rectum, or else that they did not accurately examine the cases. The examiner may be readily deceived by a superficial examination by the finger only of the genital canal, soon after labor. Clotted blood often fills a torn surface, giving to the finger the same continuity of smoothness that marks the uninjured mucous membrane. It is only by the thumb and finger, one inserted in the rectum, or, better still, by actual inspection, that the condition of the genital tract after labor can be accurately ascertained. Considerable observation of labor-cases, and the careful employment of the best-known means for preventing laceration of the perineum, have convinced me beyond reasonable doubt that such an injury is inevitable in many cases. It is negligent not to discover it; it is lazy and dishonest not to endeavor to repair it.

Fortunately, in these matters, public sentiment is demanding the advantages of scientific obstetrics. We recently had occasion to tell a young woman that she had sustained a laceration of moderate extent that ought to be closed. She said that if such was the case, she earnestly desired that it be at once repaired, as her sister had suffered from the neglect of her physician in not suturing a similar laceration. We are furthermore helped in dealing with these questions by the fact that experience shows us that excellent results may be obtained as late as twenty-four or thirty-six hours after the occurrence of a laceration. It is far better practice to give the patient and physician twenty-four hours' rest after a trying labor, and then, under anesthesia, or with the use of cocaine, close a laceration under favorable circumstances, than to further exhaust a weak patient, and with poor light and laboring under great fatigue, to improperly perform the physician's duty. If torn surfaces are found glazed over, the simple expedient of scraping them with the blade of a pair of scissors, or with a curet, will suffice to secure union by first intention.

It is burdening you with a trite observation to speak of the importance of obstetric antisepsis or asepsis, and yet the same reasoning that enables the practitioner to assert that in his 1000 cases he has never had a lacerated perineum, leads him likewise to claim that his 1000 cases he has never had a case of puerperal septic infection. He may have avoided signing a death certificate for a patient recently delivered, the certificate bearing the words "peritonitis," "blood-poisoning," "inflammation of the bowels," or "puerperal fever"; but cases occasionally perish some weeks after labor, with "jaundice," "pneumonia," "congestion of the liver," or "malaria," that, on closer study will be found to be the results of puerperal septic infection. The faithful practice of aseptic or antiseptic precautions greatly lightens the load of responsibility that the practitioner of obstetrics must carry.

Not the least of the advantages derived from the scientific practice of obstetrics lies in the avoidance of interference by those who have no right to molest the patient. The practitioner's best efforts are often thwarted by ignorant and meddlesome persons. He cannot, however, honestly forbid interference, unless he knows positively that there is no occasion to molest the patient. He will obtain the best results in obstetric practice who does the work himself, unless he can command, for certain things, the assistance of a trained nurse. Thoroughness in diagnosis, the faithful observance of antisepsis in treatment, and the protection of his patient from meddlesome interference, will give the best results. Such a method of procedure is thoroughly scientific, for it demands the best knowledge, the most careful and skilful manipulation, and, above all, an honest and fearless attempt to meet the difficulties that may arise. In the present stage of medical science, every woman has a right to demand such treatment, and if a practitioner of medicine cannot give his patient such care, he must inevitably, by the inexorable law of the "survival of the fittest," give place to those who can.

PREPUTIAL ADHESIONS IN CHILDREN, WITH CASES.

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THE bearing of preputial adhesions in children on the causation of various reflex disturbances has been recognized and mentioned by writers for many years, but there seems to be a general tendency on the part of physicians to either greatly over-estimate the importance of the subject, or, more commonly, to lose sight of its significance entirely.

In December, 1892, I began a systematic examination of the genitals of all children coming under my observation with histories of disorders that might possibly be of reflex origin, including all of those indefinite symptoms so often ascribed to the presence of intestinal worms, together with every other morbid condition for which I did not at once see an adequate and evident cause.

The results of this investigation were not in the least degree startling; nor did I expect them to be so. Some of the cases examined had no adhesions whatever of the kind in question. Many of those that did present such adhesions were not benefited in any way by the removal of the condition; but, on the other hand, a sufficiently large number of children were so completely and so promptly relieved of their trouble that I am convinced that such an examination should never be neglected in any instance in which the prepuce might be thought to occasion reflex irritation.

The cases that have been selected as illustrations will serve to show the varieties of symptoms that may be due to the existence of preputial adhesions. I have not attempted to compile any statistical tables, but it may be safely said that *almost every child*, male or female, will be found to present some adhesions—possibly very slight ones—between the prepuce and the glans of the penis or of the clitoris, as the case may be. The time necessary to inspect the genitals and break up any adhesions that may be found is of so short duration that the comparatively small proportion of cures resulting from the procedure should deter no one from trying the experiment. Two or three minutes spent in this way *may* save a child many weeks of medication and discomfort, and its parents a considerable amount of anxiety and worry, to say nothing of the credit that will accrue to the physician if he be successful:

CASE I.—Priscilla ——, a colored child, eight and a quarter years of age, was seen at the Northwestern Dispensary, December 30, 1892. There was a history of pain in the right leg and groin for one day, causing her to limp. There had been incontinence of urine for two years, steadily growing worse. The urine was voided every hour by day, and often at night. The desire to urinate would arise suddenly, and without warning, and was sufficient to awaken the child from sleep. She never "wet the bed," in the ordinary acceptation of the phrase. She had exhibited choreic motions for two years, and was a "nervous" child, easily frightened. She often had "nightmare," and ground her teeth, and talked and moaned in her sleep every night. The prepuce was completely adherent to and entirely covered the glans clitoridis.[1] Retraction was attempted under cocaine on December 31st, but was given up on account of pain. Chloroform was administered,[1] and retraction was effected. No smegma was found between prepuce and glans. On January 1st the child's condition was unchanged. The prepuce was cleansed and dusted with iodoform. There was slight purulency of the denuded surfaces, due, probably, to a previously existing vaginitis.

On January 2d, the condition was yet unchanged.

On January 4th the child went to school. Urination was less frequent, and sleep was perfectly quiet. The child's father thought her general health better; he said that she was more lively, and less irritable.

On January 6th the child urinated less frequently, and with less distress than formerly. The pain in the leg and groin had entirely disappeared. The chorea had ceased entirely. There were no more "nightmare," and the like. Sleep was perfectly quiet.

This child has now been under my observation for nearly five months, and there has been no return of her symptoms. She has received no medicinal treatment of any sort.

CASE II.—Madge ——, a white child, ten years of age, was seen at the Northwestern Dispensary, on December 30, 1892. She gave a history of incontinence of urine for several years. The urine was not voided much oftener than normal, but micturition was sudden and without warning, occurring often in the street, and *sometimes* at night. She had "wet the bed" regularly up to four years of age, but seldom thereafter. She had presented choreic motions of increasing intensity for several years. She ground her teeth at night, and had "nightmare" constantly.

She had been treated for "worms" two years previously. No worms, however, appeared in the stools. For over a year and a half there had been pain in the leg and groin, mostly at night, interfering with rest. There was often merely a desire to stretch the leg. Asthma and dyspnea occurred on the slightest exertion for over two years. There was pain over the chest, stomach, and liver. The lungs and heart were normal. The child was slightly anemic, but its general condition was fair. The bowels moved once daily. There was slight edema of the lower eyelids that might have been due to anemia. The child had had measles, but the edema had been present previously. There was no history of scarlatina or of diphtheria. The prepuce was tightly adherent to and almost entirely covered the glans clitoridis. It was retracted under cocaine. There was no smegma. The surface was dusted with europhen. A teaspoonful of mistura rhei et sodæ, after meals, was prescribed. On January 2 the urine had a specific gravity of 1010, was of acid reaction, light-yellow color, clear, and contained no albumin. The prepuce was cleaned and dusted with iodoform.

The urinary symptoms were slightly worse, probably as a result of the additional irritation set up

[1] This condition is said to rarely occur in females of the negro race. Vide Morris, Amer. Journ. Obstet., Dec., 1892.

[1] General anesthesia was employed at the special request of the parents of the child. Vide the writer's article referring to this case, in THE MEDICAL NEWS, April 8, 1893.

by the freshly denuded surfaces of the prepuce and glans.

On January 4th the child was better as to sleep, pain in the leg, and urinary trouble.

On January 6th there had been no urinary trouble whatever since January 2d. The child was able to retain its urine, even when the desire to urinate had existed for some time. There had been no chorea or nightmare since January 1st, and no pain in the leg or groin since January 2d. There had been no dyspnea or asthma since January 2d, except on *severe* exertion. There was no more pain over the chest, stomach, or liver. The bowels moved twice daily. The rhubarb and soda mixture was withdrawn.

This child received no medication beyond the rhubarb and soda mixture mentioned. I have seen her at intervals of one or two weeks for several months. None of her troubles has reappeared.

CASE III.—James ——, a white child, seven years and ten months old, through his mother, applied for admission to St. Mary's Hospital, January 2, 1893. The mother believed the child to be ill with rheumatism. I visited his home to examine him for admission, and found him in bed. There was a history of severe pain in left foot, beginning a week before at about 5 P.M. The pain had extended up the leg to the hip by 9 P.M. of the same day, and was very severe during the night. The pain was intermittent and lancinating in character. There was no history or evidence of injury or local disease. On the following day the function of the leg was lost. The part could be moved only with great pain, and walking was impossible. On examination it was found that the pain was slight by day, provided the leg was not moved, but it became very severe by night, causing loss of sleep. The child cried out with pain during the night, and talked, moaned, and ground his teeth in sleep. He had been constipated several days ago, but the bowels were now regular. There had never been any urinary disorder. The leg had been wrapped in cotton-batting, and a turpentine liniment had been applied by the direction of a physician. The slightest manipulation caused great suffering. There were no signs of inflammation in any part of the leg. The pain was now chiefly confined to the left leg. The orifice of the prepuce was small, but the glans could be easily exposed. There was a *very slight* adhesion on the left side (the left leg was affected), near the frenum. This was readily broken up. All dressings (cotton-batting, etc.,) were removed from the leg, and no medicine was given. The child was not admitted to the hospital, but was told to get up and dress himself as soon as he felt so inclined. On January 4th the boy was up, and had no pain whatever. He could move the limb in every direction, and could walk, kick, and hop with the leg. On January 6th he was up and dressed. There was absolutely no pain or interference with the function of the leg. Six weeks later there had been no return of the symptoms.

Many more cases of this kind could easily be cited, but these are enough to emphasize the point in question. I have selected three instances, occurring within four days of each other, merely to show how little difficulty I met with in collecting data. None of these children had ever come under my notice before. As stated in the introduction to this paper, a large number of those children in whom adhesions were found were not benefited in any appreciable way by the removal of the condition, but no harm was done in breaking up the adhesions and placing the parts more nearly in their normal relations.

The technique of the procedure, if so important a term may be used, is too simple to require more than the briefest mention.

Boys with actual congenital phimosis should, of course, be circumcised, but in cases in which the orifice of the prepuce is of sufficient size to permit free exposure of half of the glans, the adhesions may, as a rule, be broken up by mere traction on the parts with the thumbs and fingers. If this is not enough, a blunt probe passed under the prepuce and swept around the glans, will complete the separation. Care must be taken to fully expose the corona, back of which considerable smegma will often be found. The frenum should also be carefully inspected, for, as shown in Case III, a very slight adhesion may be the cause of severe symptoms. The parts should then be thoroughly cleansed with warm boric-acid solution, dusted with some antiseptic powder, and anointed with vaselin or a bland ointment.

The penis should be inspected, and the prepuce fully retracted daily for three or four days, or until the mucous membrane has healed, in order to prevent the parts from growing together again. If the symptoms are actually due to the adhesions, they will probably be increased somewhat for the first day or two, owing to the additional irritation. If the symptoms return after two weeks or more, the parts should again be examined for fresh adhesions.

In girls the prepuce may be seized with a thumb forceps, and a probe will readily separate it from the glans clitoridis. The precautions and after-treatment already described are then to be carried out.

As a rule, the pain is very slight, and if an anesthetic is at at all needed, cocaine is all that is necessary. I do not think general anesthesia is to be recommended for so trifling a matter, as there is always an element of danger in its use.

The idea of carefully investigating this subject in children was suggested to me by the very interesting paper by Dr. Morris, in the *American Journal of Obstetrics*,[1] in which he describes the condition as it exists in young women.

341 WEST FIFTY-SIXTH STREET.

[1] Op. cit.

A NEW EYE-MODEL (ANAKLASIMETER[1]) FOR DETERMINING THE REFRACTION BY OPHTHALMOSCOPY AND RETINOSCOPY.

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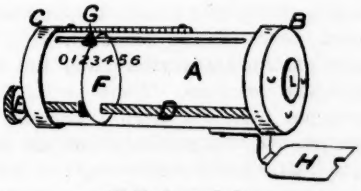
THAT an *accurate* and *inexpensive* apparatus for practice with the refraction-ophthalmoscope is a desideratum will be conceded by all that have endeavored to avail themselves of this most valuable aid of ophthalmology. The tyro, especially, who has to learn the use of the ophthalmoscope and who must endeavor to relax his accommodation, is very much in need of an instrument that will allow him to accurately observe how far he has succeeded in his efforts; or, if he cannot relax his ciliary muscle wholly, how much accommodation he still employs in his observations.

It is for this reason that I have constructed a little model of the eye, which by axial changes permits the accurate determination of all refractive conditions from —10 to +10 dioptries, with or without astigmatism, in gradations of 0.50 dioptry, if wanted. The little apparatus consists essentially of a blackened tube, A (diagram), about one inch



Half of actual size.

in diameter and three and one-half inches in length, and closed at either extremity by metal discs, C and B, the anterior disk, B, having a central opening of about one-half inch, which contains a lens of +20 D power. Near the bottom of the instrument is a screw, D, which extends along the whole length of the tube and has at the back a little handle, E, which projects from the posterior disc and allows the screw to be turned. Along this screw there slides on a nut a plate, F, representing the retina, the position of which is indicated on the outside of the tube by a pointer, G. The number to which the pointer is directed indicates the refractive condition of the eye, the white numbers applying to the degree of hypermetropia and the red ones to the degree of myopia. From the anterior part of the tube projects a metal plate, H, which supports the ophthalmoscope and is so constructed that if the ophthalmoscope rests against it the lenses of the latter are exactly fifteen millimeters from the lens of the eye-model. In order to produce an astigmatic eye three little hooks are attached to the anterior plate, B, so that a —2 D cylinder can be slipped in and turned to any desired angle.

As, of course, the eye of the completely relaxed emmetropic observer is only adapted for parallel rays, it will only see the objects on the artificial retina distinctly if the rays coming from the eye-model have been made parallel by the lens of the ophthalmoscope. The numerical value of these lenses for the different positions of the retina can be easily calculated as follows: If f is the focal distance of the lens of the eye-model and d the distance of the artificial retina from this lens, then, by the known laws of refraction, b, or the distance of the image of the retina from this lens, will be determined by means of the formula: $\frac{1}{b}+\frac{1}{d}=\frac{1}{f}$; from which we find that $b=\frac{fd}{d-f}$. This equation shows that b is positive as long as d is greater than f, *i.e.*, the image of the retina falls in front of the lens, and we have therefore to do with myopia. The ophthalmoscopic lens is 15 mm. in front of the lens of the model, or b—15 mm. from the retinal image; it is therefore necessary to find a minus lens that has a focal distance of b—15 mm., so that the rays that would come to a focus b—15 mm. behind the ophthalmoscope are made parallel after their passage through this lens. The focal distance of this required lens must then be $b-15\text{ mm.}=\frac{fd}{d-f}-15$; or, in dioptries, its refractive power D must be $\frac{1000}{b-15}=\frac{1000}{\frac{fd}{d-f}-15}=\text{D}$. From this we find that $d=\frac{(1000+15\text{ D})f}{1000-(f-15)\text{D}}$. This value for d shows us how far from the lens of the model we have to place our artificial retina in order to obtain a given number of (D) dioptries of myopia. In the same way we would find for hypermetropia that $d=\frac{(1000-15\text{ D})f}{1000+(f-15)\text{D}}$. (It must be remembered that the D's have to be taken with their absolute values only, without regard to the sign.) In this way the following two tables were found:

Myopia.

$d=50.00$	mm.	gives a	myopia	of	0. D.
$d=52.59$	"	"	"	"	1. D.
$d=55.37$	"	"	"	"	2. D.
$d=58.38$	"	"	"	"	3. D.
$d=61.62$	"	"	"	"	4. D, etc.

[1] From the Greek ἡ ἀνάκλασις, the refraction, and τὸ μέτρον, the measure. The usual word, *refractometer*, a compound of Latin and Greek stems, seems rather barbarous, and has therefore been avoided.

Hypermetropia.

$d = 50.0$ mm.	gives a	hypermetropia	of	0. D.
$d = 47.5$ "	"	"	"	1. D.
$d = 45.3$ "	"	"	"	2. D.
$d = 43.2$ "	"	"	"	3. D.
$d = 41.2$ "	"	"	"	4. D, etc.

In accordance with these two tables the scale of the instrument has been so constructed that all refractive conditions from —10 D to +10 D can be accurately determined. Practically all that is necessary is to take the model in one hand and the ophthalmoscope in the other hand, and then, after bringing the ophthalmoscope in contact with the rest, to find the highest plus or the lowest minus lens with which accurate and sharp definition of the details of the image can be obtained; and finally, to compare the number of the ophthalmoscope with that of the model. Perfect agreement shows perfect relaxation of the emmetropic eye; a plus lens in the ophthalmoscope too low or a minus lens too high by a certain number of dioptries shows just so many dioptries of accommodation used by the emmetropic observer. If the observer is not emmetropic, and if his refraction is not perfectly corrected, he has, of course, to make allowance for this in the reading of his ophthalmoscope.

If we place the cylinder of —2 D in its proper position in front of the +20 D lens we have then a sphero-cylindrical combination of +20 D in one and +18 D in the other main meridian. For the first meridian the former scale remains therefore the same, but for the +18 D lens a new scale is given below the other, so that the value of each meridian can be read off directly. Let, *e.g.*, the retina be at 85.7 mm. from the lens, then we find the pointer indicating a myopia of —7 D in one and of —4.5 D in the other.

How the instrument may also be used for retinoscopy will be clear from the foregoing description, and needs no further remarks. Of course, there are a good many contrivances that one might feel tempted to add, *e.g.*, a stand for the whole instrument, a changeable iris and a lens-holder in front of the rest for the ophthalmoscope, in order to get a point of reversal of 1 meter by using the lenses of the trial-case in this holder. The aim, however, has been simply to furnish a *reliable* and *inexpensive* means for the γνῶθι σεαυτὸν of the ophthalmologist and to omit all unnecessary accessories, which can be added, if desired. I am under great obligations to Mr. D. V. Brown, 740 Sansom Street, Philadelphia, for the elegance and accuracy with which the little apparatus has been constructed, and which is sold for $3.50.

315 NORTH SIXTH STREET.

IMPORTANCE OF ARTERIO-SCLEROSIS IN THE ETIOLOGY OF POSTERIOR SPINAL SCLEROSIS.

BY GEORGE J. PRESTON, M.D.,
OF BALTIMORE.

IN studying the pathologic anatomy of posterior spinal sclerosis, one is struck by the fact that the lesion is practically confined to the dorsal and lumbar regions. In advanced cases the cervical cord is also involved, but this is probably in great part a secondary degenerative change. Cases of pure cervical tabes are certainly very rare, so rare indeed, as almost to put in doubt their existence as a part of tabes. So far as the histology of the spinal cord is concerned there is no reason why this should be so; the fiber-tracts increase rather than diminish from below upward, and *a priori* we would expect to find a larger area of sclerotic tissue in the cervical region than in the dorsal or lumbar.

In looking about for an explanation of this fact the first thing that strikes us is that the blood-supply of the three regions of the cord is derived from somewhat different sources. The cervical cord, the lower limit of which may be placed at the sixth cervical vertebra, is supplied with blood chiefly by means of the branches of the vertebral arteries. The vertebrals enter the spinal canal at the sixth cervical vertebra, and after giving off lateral spinal branches to the cord, send off two branches, which unite to form the anterior spinal artery, and two smaller posterior spinal branches. There are also a few small branches from the deep cervicals. These spinal arteries, viz., the anterior spinal and the two posterior spinals, run the whole length of the cord, forming a series of plexuses which supply both the cord and the vertebræ. The anterior spinal artery probably supplies the gray matter, while the posterior arteries, by means of the plexuses spoken of, are probably distributed to the white matter.

Below the level of the sixth cervical vertebra, or in the dorsal and lumbar portions of the cord, another very important set of vessels comes in, namely, the intercostal arteries. Each intercostal artery sends into the cord a spinal branch which enters more or less into the formation of the plexuses already spoken of. We have in the dorsal and lumbar regions of the cord a set of vessels not found in the cervical region. Moreover, these vessels are, probably, in the lower part of the cord, the most important source of the blood-supply, as the spinal arteries are, even at their origin small and tortuous, and in the lower regions of the cord very much reduced in size. The spinal branches of the intercostals probably enter the cord as peripheral branches supplying the fibers and not the gray matter.

The bearing of these anatomic facts upon the

pathology of tabes becomes very apparent when we observe the character of the intercostal arteries. The intercostal artery is a small vessel coming off virtually at right angles to the great trunk of the aorta. Now, as Thoma, Welch, and others have shown, it is in this type of vessel that we find the beginning evidences of arterio-sclerosis. The mouths of these small vessels at length become surrounded with a mass of calcareous material and the lumen of the vessel more or less occluded. It is quite possible to have these small vessels involved before there is any general manifestation of arterial change. This is seen in the case of the renal artery, an artery of the same type, that is, coming off nearly at right angles to the large trunk.

After this condition of sclerosis, or, in a higher degree, atheroma, has involved the intercostal arteries, a diminished amount of blood would be sent to the spinal cord, and, as a result of this imperfect supply of nutriment, there occur atrophy and degeneration of the nerve elements. As a consequence of this degeneration of nerve-matter there starts, partly from the sheath of the nerve, partly from the bloodvessel, an outgrowth of connective tissue, which, in its turn, encroaches upon the softer, less resistant nervous matter, giving us the characteristic picture of sclerosis. It has been noticed that the vessels are very generally thickened in tabes, Gowers especially calling attention to this fact, but not enough stress has been laid upon the outgrowth of connective tissue from the sheaths of the nerve-fibers.

In considering the etiologic factors that by common consent are conceded to be the most important in the causation of tabes, we find the first place given to syphilis; next in importance, perhaps, is exposure to cold and wet, which in most instances means rheumatism; and third, but not as prominent as we would expect, is alcoholism. Now, these are exactly the conditions most favorable to the development of arterio-sclerosis. Syphilitic inflammation of the arteries differs in many particulars from the rheumatic and alcoholic forms, but, so far as the destructive process goes, is just as important. Experience has taught us that we can expect little more improvement in syphilitic arteritis than in arteritis from other causes. In a few cases, perhaps, treatment is effective, but only in a small percentage of cases.

The ultimate distribution of the various sets of vessels to the cord is still so imperfectly known that it is impossible to say how far we are warranted in applying this same idea to degenerative changes in the other fiber-tracts, or even in the cellular elements of the cord. Sclerosis of nerve-tissue is such a general process, such a common form of degeneration, that one cause is by no means sufficient to explain all cases. The idea suggested in this paper is meant to include the majority of cases. Undoubtedly, traumatism, peripheral disease, specific poisons, and the like, are accountable for many cases, and the connection between these causative influences and the disease in question is often very close.

With this idea of the pathology of posterior spinal sclerosis I have been treating three or four cases under my own observation, and a number of other cases under the care of my resident physician, with nitroglycerin. The principle upon which this plan of treatment rests is that thus the small branches of the spinal arteries are dilated, and a larger supply of blood thus afforded the cord. Of course this can, theoretically even, only be done to a comparatively slight extent. It is rather too soon yet to speak of results, but almost all of the patients thus treated have improved, some of them notably. The element of mental suggestion was carefully eliminated, or rather was guarded against, as the patients were not told that they were taking any special treatment, and the inquiries concerning improvement were not unnecessarily frequent. The most marked improvement was noticed in the relief of pain. Two patients reported that they had begun to notice great improvement in walking. The dose of the drug in most of the cases was one one-hundredth of a grain, in tablet form, three times daily. Occasionally it happens that a patient cannot comfortably take this dose, and I have had to reduce one-half, which seems almost infinitesimal, but in these susceptible persons one two-hundredths of a grain will flush the face. On the other hand, much larger doses may be given. One of my patients took for some time a fiftieth of a grain t. i. d. This patient, however, was not a tabetic.

It is probably premature to publish these notes, but I am anxious to see if this remedy proves as successful in other hands as it has in mine. Another point that I would like observed is the condition of the mouths of the intercostal arteries in cases of tabes. This is such a chronic disease that one has often to wait a very long time to collect enough autopsy reports to warrant the drawing of inferences.

819 N. CHARLES STREET.

Spontaneous Disappearance of Gonorrhea in the Course of an Intercurrent Acute Disease.—At a recent meeting of the French Dermatological Society, BOGDAN (*Wiener medicin. Presse*, 1893, No. 21, p. 817) reported the case of a male, eighteen years old, under treatment for gonorrhea, in which the urethral discharge ceased a day after the development of an attack of left-sided pneumonia, to return with its previous activity during convalescence.

BARTHELÉMY stated that he had observed two analogous cases in connection with enteric fever. Death occurred in one, without a return of the symptoms of gonorrhea. In the other an acute epididymitis developed on the seventeenth day.

CLINICAL MEMORANDUM.

EXTENSIVE FRACTURE OF THE SKULL FROM AN UNUSUAL CAUSE.

BY W. M. L. COPLIN, M.D.,
ONE OF THE VISITING SURGEONS TO ST. MARY'S HOSPITAL,
AND
O. D. SCHAUL, M.D.,
RESIDENT SURGEON TO ST. MARY'S HOSPITAL

H. M., twenty-five years old, a laborer, was brought to St. Mary's Hospital by the patrol wagon, on February 20, 1893. Accompanied by a friend, the patient had been carrying a keg of beer, when he slipped, and his head was caught between the keg and the pavement. When brought to the hospital he was conscious, but could not open his eyes on account of the swelling of the lids and an extravasation of blood into the loose cellular tissue of the upper eyelids. There was a steady oozing of blood from the nose and from the left ear; sub-conjunctival hemorrhage was also present.

Upon examination, the right side of the head seemed very much flattened anteriorly, the flattening including the right frontal eminence, the upper portion of the temporal bone, and the lower angle of the parietal. In contrast, the left side of the head, more particularly the external angular process, and in a line directly upward from the anterior angle of the frontal bone, projected forward and toward the left. There was no evidence of fracture upon the back portion of the head on either side, and no indication of contusion was noted at the time.

The patient talked rationally, and gave fairly sensible answers to all questions. There were no manifestations of motor lesions, no difficulty in coördination. The patient was not severely shocked, and did not show any pathognomonic symptom of cerebral injury.

Over the right frontal eminence was a small lacerated wound, which presented some of the characteristics of a punctured wound. It could not, however, be traced to the bone, and apparently extended only through the skin and superficial fascia. The patient vomited, the ejected matter looking like tobacco, with possibly some blood that had been acted upon by the gastric juice.

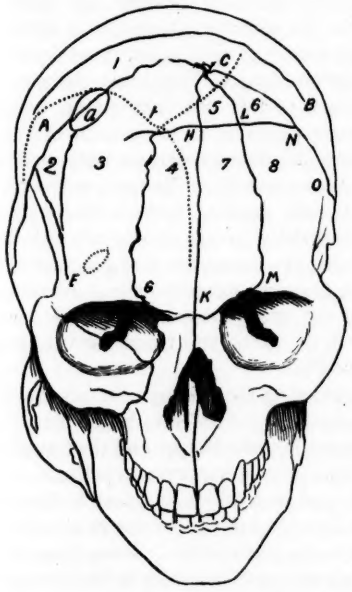
A line of fracture was found extending in the median line just above the forehead, and laterally down beneath the zygomatic arch. There were several areas over the depressed portion of the frontal bone, and one slightly back of the point of depression, that, to the finger, felt like wire under the tissues. These were, probably, the linear fractures to be described later on.

The head was shaved, and preparations made for an aseptic operation. An incision was carried over the median line of the anterior margin of the scalp, outward, backward, and outward over the apparent line of depression. All of the tissues were turned back, revealing a comminution of the anterior portion of the skull, as shown in the accompanying illustration. The trephine was inserted at the point shown in the illustration, and a small button of bone was removed. The rongeur forceps was then used to free the lines of fracture on either side, so as to permit of elevation. This was only partially successful. The fracture extending downward toward the base in the zygomatic fossa, and across to the orbital plate, could then be made out. From the anterior fossa several pieces of the base were removed. The accompanying illustrations show the lines of fracture.

There was no subdural clot, but there were several points of hemorrhage. Those in the dura were ligated, while those at the margin of the bone were arrested by plugging with threads of aseptic gauze. The latter procedure can easily be carried out by means of a needle, and is very efficient for the arrest of hemorrhage from vessels in bone. Quite a number of pieces of bone were removed from the orbital plate of the frontal bone, and a few that impinged on the cerebrum itself.

The dura was markedly lacerated at the base and in the temporal region. From all of these portions of laceration fragments of bone were removed. Little difficulty was found in arrresting the hemorrhage. A drainage-tube and some horsehair were passed down to the base, and carried out to the opening over the zygoma. The wound was then dressed.

FIG. 1.

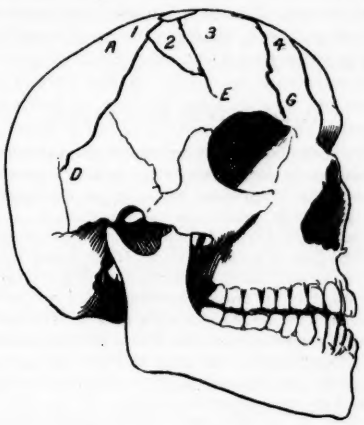


There were no evidences of fracture posteriorily, or on the opposite side of the skull, except the line that continued across, and as there was very little depression, and the patient was becoming considerably shocked, the wound was closed. Before it was closed, however, the finger passed under the dura showed that the points of depression were rather in the external plate than in the internal. The left ear was washed out with an antiseptic solution, and packed with mercuric-chlorid gauze. An attempt was made to treat the nose likewise, but was not fully successful, as the patient would not permit the packing to remain, and resisted every attempt at washing the nose out.

Immediately after the operation, which was completed at 2.30 A.M., on February 21, the patient was placed in a bed, and surrounded by hot bottles. At 3 A.M. he was resting comfortably, although he had not yet recovered from the ether. When consciousness returned he was restless and peevish, and readily annoyed. He com-

plained of being sore wherever he was touched, and repeatedly asked to be waked up. Even when he was answering questions intelligently he seemed to adhere to the fact that he was asleep. Immediately after the operation he was given gr. $\frac{1}{20}$ of strychnine, which was repeated three times during the day. He complained of moderate pain in the head. For the restlessness potassium bromid was offered, but refused. Once or twice during the day the man vomited. The vomited

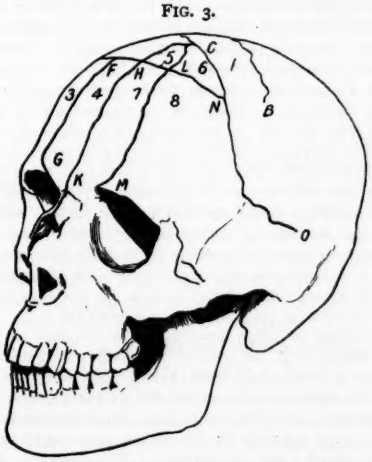
FIG. 2.



matter looked like tobacco-juice mixed with blood. The man could be induced to swallow but little nourishment—a little beef-tea and some milk.

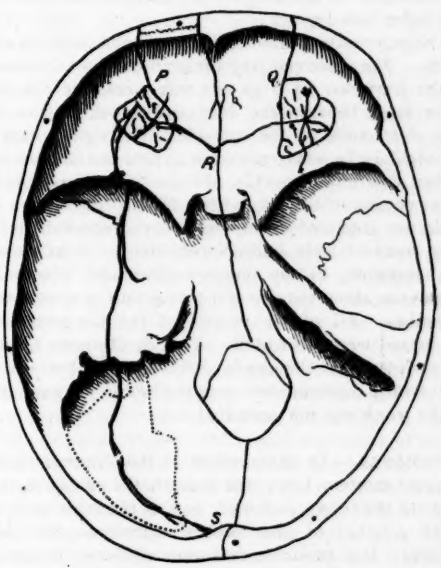
The wound was dressed on the morning of February 21, and showed no evidence of infection; there had been but little oozing. The oozing from the left ear continued; the hemorrhage from the nose had apparently

FIG. 3.



been arrested. There was intense ecchymosis around both orbits. In the afternoon, gr. $\frac{1}{8}$ of morphine sulphate was administered hypodermatically, after which the man enjoyed nearly four hours of quiet sleep. Whenever disturbed, he asked to be waked, and persisted that he was asleep. On the morning of February 22d, after a restless night, uneventful in any particular, the wound was dressed. There was no evidence of suppuration; the gauze was pretty freely saturated with serous oozing, and the flow from the left ear had been free and continuous. The patient was not fully conscious, but answered many questions intelligently. He seemed easily worried, and became annoyed by the slightest disturbance. He expressed a desire to know the day of the week, and regretted that he had not been able to vote. He also expressed a desire to go home, and told his mother that he would "be up right away." He continued to believe that he was asleep, and would not permit his eyes to be opened, as he believed that the opening of the lids would lead to blindness. He complained slightly of fulness and pain in the head. He made several attempts to rise from bed, and expressed a desire to go home, stating that if those about him did not stop resisting his movements he would "holler murder." He was restless, and rolled uneasily from side to side, and made numerous attempts to remove the bandage from his head.

FIG 4.



On February 23d the symptoms had not materially altered; the man still answered questions rationally, his delirium partaking of the desire to be waked up. His pulse was fairly good. He complained of pain and aching all over, without being able to definitely locate any point of pain of greater intensity. He was restless, and occasionally rose up suddenly, and asked to be awakened, and wanted to go home. The wound was dressed, and looked perfectly healthy.

On February 24th the restlessness was somewhat increased. The man persisted in strongly blowing his nose, and constantly wanted to go to the water-closet. His extremities were cold, and his pulse seemed weaker than on previous days. He was given one-thirtieth of a

grain of strychnine three times during the day. In the afternoon the restlessness increased, and attempts were made to retain an ice-bag on his head. The temperature rose to 102° F. The wound looked well; the drainage had been removed; there was some discharge from the left ear, although it had been suppressed on the day before. At 9 o'clock in the evening the pulse rose to 136; it was weak, later became fuller and slower, and reached about 100. At 10 o'clock he began to sink gradually; unconsciousness became more profound; there was picking at the bed-clothes, tremor of the hands and legs, and general cyanosis; restlessness ceased with the development of coma, and death occurred at 1 o'clock on the following morning, without any material alteration in the symptoms, except a progressive increase in severity.

On the first day the temperature rose from 98° F. to 100.6° F.; on the following morning it was 98.2° F., on the evening of the second day 99.4° F., on the morning of the third day 99° F., in the evening 99.2° F.; on the morning of the fourth day the temperature had dropped 4° F., to 98.8 F.; in the evening it was 99° F.; on the morning of the fifth day the temperature was 99.2° F., but by evening it had risen to 102.6° F., and at the time of death, on the morning of the sixth, the temperature had fallen two degrees.

The post-mortem examination was made six hours after death. The accompanying illustrations show the extent of the fractures. A large clot was present in the posterior fossa, between the dura and the skull, from the line of fracture on the left side. The right tempero-sphenoidal lobe was lacerated in an area one and one-half inches long, one inch wide, and one inch deep. At the lower portion of the left inferior frontal convolution the brain was lacerated in an area one and one-half inches long, one inch wide, and one inch deep. A little above the laceration, in the tempero-sphenoidal lobe, was a large vein, about the size of a goose-quill, occluded by a thrombus. All of the vessels of the pia mater and arachnoid were distended. A slight fibrinous exudate covered the convolutions in different areas, but was not universally disseminated upon the brain. Examination of the trunk was not permitted.

REMARKS.—An examination of the illustrations and the post-mortem notes will indicate the extensive character of the injury sustained, and, at the same time, the small number of the cerebral symptoms that were present. It is probable that when vital centers are not involved the brain is competent to withstand most extensive traumatisms, and when asepsis is secured there is reason to believe that recovery will take place in a large percentage of cases. From the second to the fifth day after the accident there were no symptoms attributable to any grave lesion or inflammatory process within the cranium. This is well shown by the temperature curve, and is probably to be explained by the avoidance of infection. On the fourth or fifth day, by reason of defective asepsis, infection took place through the nasal cavity. It is probable that the Eustachian tube is always infected, and when the fracture passes, as this did, through the middle ear, it affords a seat for infective processes even better than does the passage of infective matter up through the fissured ethmoid. It is probable also that packing of the nasal cavities will more efficiently prevent infection through the superior nasal orifices than through the Eustachian tube. In a similar case we would be tempted to plug the posterior nares thoroughly, and treat the nose as a closed cavity, applying antiseptic solutions freely. We do not think that asepsis can be secured in the nasal cavities by washing out and packing, without at the same time plugging the posterior nares. While it is probable that the elevation of temperature is to be ascribed to infection, it is not impossible that this may have been due to the process of repair and an exudation of serum; but the lateness of the rise rather indicates that infection occurred, and to this death is to be attributed.

EXPLANATION OF ILLUSTRATIONS.

A B, linear fracture, posterior to the coronal suture at A, slightly anterior to the coronal suture at B. C, point of union directly over the longitudinal sinus. Q, on the interior of the skull, marks the point where the linear fracture, F G, continues through the orbital plate, and terminates in the comminuted mass in the orbital plate of the frontal bone. It will be seen that the two comminuted areas, P and Q, communicate with each other through the linear fracture that crosses the median line at R, and is there continuous with the linear fracture, C H K, on the external surface, the line of fracture stopping at R. From the comminuted area P we have a linear fracture extending backward through the semicircular canals, possibly involving the cochlea, and terminating at S, slightly above the torcular Herophili.

It will thus be seen that every bone in the cranium was fractured, and all in most unfavorable situations, except the right temporal bone, which only had the upper angle of the squamous portion fractured to an extent of about one inch.

a marks the area from which the trephine button was removed. 1 is intended to label the area that might be called a fragment, except that it is not detached at either end of the linear fracture A B. Fragment 2 was removed. The irregular-shaped fragment 3 was depressed at its superior angle, and caught by fragment 1. In order to be able to raise 3, the rongeur forceps was used in making a line from the trephine point to F, and then the upper fragment of 3 could easily be raised; the lower fragment was raised with more difficulty, and less successfully. Fragment 4 was raised. Fragment 5 was also raised. Fragment 6 did not seem to be depressed. Fragment 7 and 8 could not be readily raised. Through the opening made by the rongeur forceps and the removal of fragment 2, many pieces were removed from the comminuted mass situated on the right orbital plate of the frontal bone. The oval dotted line above E marks the point of the punctured wound in the scalp, already referred to, there being no injury to the skull proper at that point. The dotted line just above K marks the site of the skin-flap first made. It was afterward found necessary to make a branch cut-off from F, in order to expose fragments 5, 6, 7, and 8. A drainage-tube was brought out below A, having its exit through the skull, where fragment 2 had been situated. The dotted lines in the posterior fossa mark the area in which a subdural clot was found after death.

The method by which these lines were obtained is, so far as known, original with Dr. Coplin. The skull photographed in the drawing is a French preparation, having the internal ear dissected out, and is easily separated into pieces. It was coated over with mucilage and, while moist, black silk was used to mark the lines of fracture. This was done by the resident physicians following the lines discovered at the post-mortem. The result was then photographed, and reproduced as shown. If No. 8 black silk is used, beautiful lines can be made by this method. The vertical section of the skull occupies the line shown in the linear fracture at K, which, in the case reported, terminated at the articulation with the nasal bone, extending from this backward, as shown in the interior of the skull as far as R.

MEDICAL PROGRESS.

Operative Removal of an Enlarged and Displaced Spleen.—At a recent meeting of the New York Surgical Society, MARKOE (*Annals of Surgery*, vol. xvii, No. 5, p. 582) presented a woman, aged sixty-four years, from whom he had, seven months previously, removed an enlarged and displaced spleen. Several years before, the woman had strained herself in attempting to lift a sick child from a crib with fixed and high sides. Pain was felt low down on the right side of the abdomen, where there was also noticed a protrusion, the reduction of which was followed by relief. On the following morning the woman was seized with faintness, nausea, and trembling, although she had fainted before. From this time excessive muscular exertion or unusual position was attended with displacement of the lump and discomfort. Some time later, after a fall down stairs, the lump increased in size, and there was additional discomfort. Now there began to be increased frequency of micturition, aggravated by activity, by standing, and by walking. A feeling of pressure in the rectum was experienced, which was especially distressing when constipation existed. Digestion was greatly deranged. On one occasion the woman was seized with a severe attack of colic lasting for more than an hour and attended with marked bearing-down pains. The tumor was believed to be splenic, but there was no evidence of malaria or leukemia. After a period of restorative treatment preparatory to operation, a long incision was made in the median line, and the enlarged organ was dislodged from the pelvis and lifted into the wound. The inferior extremity lay tightly wedged in the pelvis, the anterior surface looking anteriorly and inferiorly, while the hilum was behind and somewhat above. The stomach had been dragged down with the spleen, and the gastro-splenic and suspensory ligaments were stretched into a broad, thin pedicle, in which several accessory spleniculæ were seen, in addition to the large and tortuous vessels. The greatest care was exercised to avoid undue tension upon the pedicle. The splenic artery was isolated and tied with a stout silk ligature. The pedicle was then doubly transfixed and tied with three locked ligatures, the inferior of which was tightened first. The portion included in this ligature was then cut away from the spleen, but immediately retracted, the ligature becoming detached, and a momentary sharp venous hemorrhage resulting, which was, however, immediately and efficiently controlled by the application of a large clamp. The remaining portion of the pedicle was grasped with two similar clamps and the spleen was cut away. The two remaining ligatures were then tightened and the clamps cautiously removed. To guard still further against slipping, the pedicle was additionally transfixed at its center and all was included in a ligature of strong silk. An accessory spleen as large as an egg was treated in the same manner, several smaller ones being left behind. The wound was closed without irrigation or drainage. The operation occupied an hour and forty minutes. Reaction was perfect. The urine first passed after the operation contained a large number of leukocytes, but was otherwise normal; two days later it was absolutely so. Examination disclosed no change in the number or relation of the blood-cells. A month after the operation the woman was permitted to return to her home, though cautioned to wear an abdominal bandage and to rest for another month. She grew steadily stronger and better, and was entirely relieved of all symptoms. The spleen weighed a little over five pounds and a half, the accessory spleen half an ounce. Microscopic examination of sections of the organ disclosed no pathologic change beyond some relative increase in the amount of connective tissue.

Tumor of the Pituitary Body.—WADDELL (*Lancet*, No. 3634, p. 921) has reported the case of a man, thirty-nine years old, who for two years had observed progressive impairment of vision, which was found to be due to partial bi-temporal hemianopsia. Both eyes were rather prominent; the pupils were equal and reactive to light; neither fundus presented any characteristic abnormality; the functions of the external ocular muscles were preserved. A diagnosis of tumor of the pituitary body was arrived at, although there was no history of syphilitic infection and no indication of akromegaly. In the past there had been but occasional headache. The reflexes were unaltered. The first indication of serious activity of the supposed tumor was the occurrence of intense frontal headache, with great prostration and a rapid short pulse. The axillary temperature was 103°; the tongue was heavily coated; there were nausea and vomiting; the face was flushed, the eyes full and injected; the patient was drowsy, but unable to sleep. These acute symptoms gradually subsided in the course of two or three days. Subsequently, slight attacks of frontal pain occurred at intervals, and the man was only with difficulty roused to any activity. He would remain for a long time in a quiet, absent-minded condition, from which he would occasionally start and ask some unimportant question, which he would repeat a short time afterward. He could clearly recall events that had occurred many years before, but not recent events. Later on, the right pupil became dilated and reacted to light, but imperfectly. The reflexes became diminished. The urine presented no abnormality. The frontal headache, previously variable, now recurred periodically about every two weeks. These exacerbations were always preceded by more than usual depression of mind, which was followed in a few hours by quickening of the pulse, a steady rise of temperature, and increasing frontal pain. The face and eyes were invariably suffused, and the bodily prostration and drowsiness were intense. The paroxysms generally lasted from twenty-four to thirty-six hours, and gradually subsided, each succeeding one leaving the man weaker than before. In one of these attacks right hemiplegia appeared, with partial loss of consciousness, increased frequency of pulse, elevation of temperature, double strabismus, and dilatation of the left pupil (as well as of the right). Consciousness began to return in a few hours, the temperature and the frequency of the pulse diminishing; the paralysis gradually passed off, and in twenty-four hours no trace of it was left. Total aphasia existed for about thirty-six hours after the return of consciousness. The patient, however, never entirely rallied, and recurring attacks of pain in the head, defective assimilation, and the formation of bedsores brought about a fatal termination from asthenia. When the skull-cap was removed the brain presented a somewhat

shrunken appearance. On removing the brain a firm, consistent, reddish-brown, oblong tumor, an inch long and less than three-quarters of an inch wide, involving the anterior lobe of the pituitary body, was found. Lying immediately to the left was a collection of fluid venous blood, retained in the form of a clot by a fold of membrane. The tumor pressed about equally on the two optic nerves.

For the Formation of an Artificial Sphincter after Extirpation of the Rectum, WILLEMS (*Centralbl. für Chirurgie*, 1893, No. 19, p. 401) recommends the following procedure: After the lower segment of the rectum, with the sphincter ani, has been removed through a perineal incision the patient is placed in the lithotomy position. If a large portion of bowel has not been removed the distal portion can be readily reached and drawn down. An oblique incision is now made over the tuber ischii, about two inches long, and extending upward and outward, in the course of the fibers of the gluteus maximus muscle. The muscle-bundles are separated with a blunt instrument, about a half-inch from the lower margin of the muscle. The bowel is drawn through this opening and attached to the external skin. If a large portion of the rectum has been removed, the sphincter must be established higher up. The patient is placed in the lateral position and an incision is made through skin, connective tissue, and aponeurosis, extending from the uninjured, right margin of the sternum downward and outward. The muscle is separated in the manner already described (the tuberoso-sacral and the spinoso-sacral ligaments will also have to be divided), and the bowel is attached to the skin. After the artificial anus has been established the wound can be drained and packed.

THERAPEUTIC NOTES.

The Treatment of Suppurating Buboes.—OTIS (*Journal of Cutaneous and Genito-urinary Diseases*, vol. xi, No. 128, p. 174) reports the treatment of 16 cases of suppurating bubo by means of injections of a mixture of iodoform and vaselin. Of this number, 9 were cured in six days, 3 in twelve days, 1 in fourteen days, 1 in twenty-three days, and 2 failed to report. The skin for some eight or ten inches about the affected area having been rendered thoroughly aseptic by scrubbing with green soap, washing with sulphuric ether, and douching with a 1 : 1000 solution of mercuric chlorid, a narrow bistoury was introduced into the abscess-cavity, and the contents gently, yet thoroughly expressed. The cavity was irrigated with a 1 : 1000 solution of mercuric chlorid, and immediately filled, by means of an ordinary cone-pointed glass syringe, to moderate distention with warm iodoform-ointment, the degree of heat not being sufficient to liberate free iodin. The plunger of the syringe being removed, the barrel was gently heated in the flame of an alcohol-lamp, filled with the ointment by means of a spatula, and the plunger replaced. On finishing the injection and withdrawing the syringe, a cold compress wet with cold mercuric chlorid solution was applied. The ointment was at once solidified at the orifice of the cavity, so that the contents could not escape. A large compress of dry mercurial gauze was applied, covered with a protective dressing of cotton, and retained by means of a firm spica. If at the end of four days all had gone well the dressing was reapplied, but if there was any evidence of inflammatory action the wound was thoroughly irrigated and cleansed, and the injection repeated.

The Epidermatic Employment of Guaiacol.—SCIOLLA (*Rif. Med.*, No. 7; *Wiener med. Pr.*, No. 19) has found that topical applications of guaiacol to the skin have the property of reducing high temperatures, not only in cases of pulmonary tuberculosis, but also in other febrile conditions. The influence is observed soon after the application has been made, and is the more energetic if the surface treated be covered with some impermeable material. Fifteen minutes after the application the characteristic taste of guaiacol can be perceived; then the temperature begins to fall, and more or less profuse perspiration takes place. The temperature frequently falls to the normal in the course of a few hours. There are no unpleasant complications, such as cyanosis, coma, and the like; on the contrary, the antithermic effect is attended with agreeable subjective sensations. Guaiacol thus applied to the skin is excreted by the kidneys as guaiacol-ether sulphate, which first makes its appearance in about an hour after its application and reaches its maximum elimination in five or six hours. The application may be made several times daily. The largest amount used in twenty-four hours was a little less than an ounce. A similar line of observations with creasote had to be abandoned on account of the caustic effect of the applications.

Menthol for Pruriginous Conditions.—COLOMBINI (*Giorn. Ital. d. Mal. Vener.; Wiener med. Pr.*, No. 19) has obtained excellent results from the employment of preparations of menthol (from 5 to 10 per cent. in alcohol, from 1 to 6 per cent. in oil, from 2 to 6 per cent. in powder) in the treatment of pruritus from whatever cause, but especially in those cases in which the scratching of the skin was responsible for the cutaneous affection, and particularly in cases of urticaria, in some forms of eczema, and in the pruritus of scabies. Preparations applied to excoriated surfaces or to mucous membranes should not be too concentrated, else they will cause burning; nor should too extensive surfaces be treated at once, as the sensation of cold produced may become disagreeable. In cases in which the itching is but a symptom, the primary disease will require special treatment. In such cases menthol can only bring about amelioration, and the pruritus will not entirely disappear until the causative disease has been cured.

The Treatment of Acute Nephritis with Methylene-blue.—Governed by the view that acute nephritis is of microbic origin, and by the knowledge that methylene-blue will inhibit bacterial development, NETSCHAJEFF (*Berliner klin. Wochenschr.*, 1883, No. 20, p. 470) employed this drug in the treatment of fifteen cases of acute nephritis, with excellent results. Tablets of a grain and a half were given thrice daily on alternate days. The urine was discolored in the course of an hour, and on the following day its volume was augmented. Albumin and tube-casts gradually disappeared. There were no unpleasant secondary manifestations.

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MENINGITIS SEROSA.

MOST practising physicians have experienced the great difficulty in cases of meningitis of deciding as to the precise nature of the disease, and more particularly as to the exact character of the effusion. The serous form of meningitis has been so well discussed in a recent paper by H. QUINCKE, of Kiel ("Ueber Meningitis Serosa," *Sammlung klinische Vorträge*, March, 1893, N. F., No. 67), that we have deemed it worth while to present a brief summary of this, together with some general remarks upon the differential diagnosis of the different varieties of meningeal exudation.

QUINCKE distinguishes serous meningitis from hydrocephalus on the one hand, and purulent inflammation of the meninges on the other hand. He believes that the watery effusions into the meninges and into the ventricles are of inflammatory origin, and describes some fourteen cases that have come under his notice. The cases are divided into (*a*) those beginning acutely and (*b*) those beginning slowly; the former being further subdivided into (1) those running an acute course and (2) those that pursue a chronic course. The chronic cases in turn are subdivided into (1) those of a progressive course and (2) those that are attended with acute exacerbations.

It has long been known that in diseases within the skull more than in those in any other situation in the body, it is the extent of the disease-process rather than its anatomic character that is of significance as to the severity and course of the affection. This holds good for tumors as well as for collections of pus and blood, and in a more striking way for the relatively indifferent serous fluids within the cranial cavity, which, though situated in most indifferent regions and without the production of focal symptoms, may cause death. The actual size, however, of an exudate that may lead to a fatal termination is subject to individual variations. As the actual harm done is due to the pressure of the fluid on the brain-substance, in every case three factors necessarily come into consideration: (1) the amount of the exudate, (2) the rapidity with which it is poured out, and (3) the relation of the size of the brain to that of the containing cranium.

Thus it is often difficult at the post-mortem examination to judge of the pathologic significance of watery exudates within the skull, whether in the ventricles or in the sub-arachnoid species. Of course, edema of the brain-substance is always a pathologic condition. The amount of fluid found in the cavities, even in health, represents only the space within the skull not occupied by brain-substance; and in old age, in the diffuse or partial atrophies of the brain, and under various other conditions, the amount of cerebro-spinal fluid may be considerably increased without any evidence of abnormal intracranial pressure.[1]

Very often, at autopsy, a fresh exudate can be distinguished from such a *hydrops ex vacuo* only by the tension of the membranes and the flattening of the convolutions; but after death, even in cases in which pressure-symptoms during life have been marked, it is not always easy to make out these signs, as the *turgor* may, like serous exudations in other parts of the body, disappear after death. Again, primary exudates within the ventricles, which have come on slowly and have lasted a long time, may cause few symptoms pointing to an increase in pressure, as the brain-substance adapts itself to new relations more readily than might be supposed.

These are among the difficulties that have made

[1] Numerous observers have tried to lay down a standard of intra-cranial pressure to be regarded as normal; thus, Bischoff places it at between 41 and 103 g., while Quincke says that any pressure over 50 g. is to be regarded as pathologic.

the whole subject of hydrocephalus so obscure, and although we are able to enumerate the different modes of origin of hydrocephalus, and perhaps to explain the general pathology of the affection, yet it is still impossible to make a classification that will suit all cases.

The number of cases in the literature that can fairly be regarded as instances of serous meningitis is comparatively small, though the examples of BAGINSKI and STEFFEN of meningitis ventricularis, the acute lepto-meningitis in children of HUGUENIN, and the serous meningitis of EICHHORST may properly be classed under this heading. OPPENHEIM, PLEHN, and SOCIN have also recorded cases. It is probable that the disease is not nearly so infrequent as the literature would lead us to suppose, as in many cases in which there has been no autopsy there is little doubt but that acute serous meningitis has often been diagnosticated as purulent meningitis, and the chronic forms of the affection have been added to the list of brain-tumors. Even when autopsies are made, insufficient attention is frequently paid to the amount of exudate present.

The clinical picture of the acute form varies considerably. The disease may be as sudden in onset as purulent meningitis, but it is generally slower in course and simulates rather tuberculous meningitis. QUINCKE emphasizes the absence of fever, and says that when this is present it is only slight in degree, does not last long, and shows many irregularities in its course. Pain in the head and retraction of the neck are usually present, but vary in intensity, and are not such prominent symptoms as in the purulent or tuberculous forms. Mental disturbances appear later, and are less marked than in meningitis purulenta. If they continue long they render the prognosis grave. Delirium, sleeplessness, hyperesthesia, pain in the joints, and local paralyses may occur. Spasms in extensive muscle-areas, often epileptiform in character, are not infrequent. Vomiting occurs often; the pulse may be slow and irregular; the pupils are frequently unequal, but, as a rule, present no marked changes. Choked disc seems to be very frequently demonstrable, and QUINCKE holds that this sign is almost constant. In cases of recovery it may disappear, but occasionally it leads to atrophy and amblyopia. The irregularity of the symptoms is often more marked than in the ordinary forms of meningitis, and the clinical picture varies greatly from day to day, or even from hour to hour.

In the more insidious cases, and in those that run a chronic course, sometimes continuously progressive, sometimes with intermissions and exacerbations, the symptoms resemble very closely indeed those of brain-tumor.

The disease is chiefly one of children and of young adults, and, as a general rule, the younger the patient the greater the tendency to chronicity, with acute exacerbations. Injuries to the head, excessive mental effort, acute and chronic alcoholism, and the acute febrile diseases have been mentioned as the main causes. In chronic cases pregnancy is often responsible for exacerbations. According to QUINCKE, bacterial infection does not play a part in the etiology of serous meningitis.

To understand clearly the pathology and pathogenesis of meningeal affections, it is necessary to recall some of the facts of the physiology of the central nervous system and its meninges. It will be remembered that, normally, the cerebro-spinal fluid in the ventricles, as well as in the sub-arachnoid spaces of the brain and cord, is a secretion that flows off, mixing with the lymph through the arachnoidal villi (Pacchionian bodies), and through the tissue-network at the points of exit of the nerves. The experiments that have been made with cinnabar show that resorption is greater in the meninges of the brain than in those of the cord, and these, along with the experiments of FALKENHEIM and NAUNYN, have proved that absorption takes place chiefly by means of the Pacchionian bodies. Normally, of course, there must be a certain definite relation between the amount of secretion and the rate of absorption, and between the secretion into the ventricles and that which is poured out in the sub-arachnoid spaces. Excluding *hydrops ex vacuo*, which we have already mentioned, the general conditions that give rise to a pathologic increase in the amount of cerebro-spinal fluid are much like those that account for the accumulation of fluid in the pleural or peritoneal cavities, that is to say, lymphstasis, blood-stasis, and inflammation.

QUINCKE distinguishes meningitis corticalis sharply from meningitis ventricularis, and says that in the former the fluid has a tendency to be turbid and the disease to be parasitic in origin, while in the latter the fluid is clear and the disease is very rarely due to infection. He compares the intra-ventricular form with intermittent joint-effusions, with urticaria, and especially with acute angio-neurotic edema. He thinks that the affection is more com-

mon in children, because in them the vascular walls are much more likely to undergo changes that render them permeable, and also because an exudate into the brain of a child is more frequently followed by serious symptoms, as it offers less resistance than that of an adult.

In many cases of serous meningitis cure is effected through cessation of the exudation or through a compensatory process, partial or complete, by means of which the efferent channels are widened. Even when a high degree of pressure has lasted for a long time and has led to continuous dilatation of the ventricles, there may yet at a later time be a return to the normal pressure; and in children the dilatation of the ventricles may disappear with increasing years. In those cases in which the compensation is incomplete, even though only apparently trivial symptoms remain, there is always danger of sudden death from an acute exacerbation.

The diagnosis is perhaps that which interests the practical physician most. The acute form is likely to be mistaken for purulent meningitis, but the absence of fever or the presence of but a slight degree of fever, the slower course, the more variable symptomatology and the choked disc in the former, as a rule, enable us to make the distinction. The more subacute forms resemble closely tuberculous meningitis. Both diseases are insidious in onset and often remittent, but the absence of tuberculous disease in other organs, the normal temperature, and the general course are in favor of meningitis serosa. It is to be remembered, however, that in individuals with tuberculosis there may be a complicating serous meningitis. The diagnosis of chronic cases is still more difficult. These can be distinguished from brain-tumor only rarely *intra vitam*. Serous meningitis may give rise to focal symptoms, paralyses, convulsions, and localized pains in the head. Choked disc and blindness appear more quickly, however, than in brain-tumor. Most puzzling are those tumors of the posterior fossa of the skull that give rise to hydrocephalus from stasis. QUINCKE regards as important the application of a test that he designates lumbar puncture, in conjunction with examination of the fluid obtained. A specific gravity of 1009 with an amount of albumin of over two parts per 1000 is suggestive of hydrocephalus through blood-stasis. To distinguish the auto-intoxications (*e. g.*, acetonemia) from instances of the acute form, one will be guided by careful examination of the eyes and of the urine, and by lumbar puncture. In the very chronic and very mild cases serous meningitis may present symptoms of cerebral neurasthenia, and one cannot be positive whether he is dealing with an organic affection of the nervous system or not.

As to treatment, in the acute form anti-phlogistic measures are recommended; the application of leeches to the neck, the ice-bag, the use of intestinal derivatives, complete rest, and avoidance of excitement are advised. QUINCKE lauds highly the administration of mercurial preparations, preferably by inunction, or, if a speedy effect be desired, by hypodermatic injection. He keeps up the treatment for from four to six weeks, and has found it to be of great service in many cases. He suggests the use of pilocarpine, but has not tried it, and states that, as in other angio-neuroses, something may be expected of quinine and antipyrin during slight exacerbations. In the more chronic cases he uses flying vesicants on the skin of the head and neck, painting with iodin, and, most of all, cautious inunction with an ointment containing tartar emetic. When imminent danger is to be apprehended from the intra-cranial pressure, he would resort to lumbar puncture, removing from 5 to 80 c.c. of fluid through a hollow needle introduced at a distance of one centimeter from the middle line beneath the second, third, or fourth lumbar vertebra.

EDITORIAL COMMENTS.

Changes in the Medical Department of the Army.—Surgeon-General Sternberg, the new chief of the Medical Department of the Army, contemplates two important changes for the benefit of that service. One is the establishment of a special course of training for newly-appointed officers of the corps. This course will be given in Washington, and will constitute what will be known as the Army Medical School. It will be conducted in the Army Medical Museum and will be of four months' duration. Four of the senior medical officers stationed in the city will, in addition to their other duties, conduct this course.

The other project of General Sternberg is to give the officers of the medical corps the advantages accruing from metropolitan life. He proposes to change the system of assigning medical officers for duty as attending surgeons in the large cities. It has been the custom heretofore to detail for this purpose the older medical officers of the army. The duty usually lasts three or four years. In some cases it has lasted ten or a dozen years. The duty of the officer so detailed is to attend army officers and their families in and about the city of his location. Dr. Sternberg will hereafter detail medical officers having the rank of captain to duty as attending surgeons. The tour of duty will last only one year. By

this system the medical officer selected will be enabled to become familiar with the practice of the leading physicians and surgeons in this country and to attend medical lectures and meetings of medical societies. The experience and observation will fit them the better for their second examination, which is required by law before they can be promoted to majorities.

The Antiseptic Virtue of Iodoform.—Iodoform holds a unique position in its relation to antiseptic surgery. Although it has been demonstrated that the drug possesses no direct germicidal property, there is a general consensus of opinion that used in one form or another, as a powder, in emulsion, by inunction, it exerts an influence that may be considered antiseptic. An adequate explanation of this action is wanting, abundantly confirmed by observation though it is. In his recent address upon "The Antiseptic Management of Wounds," SIR JOSEPH LISTER adopts the view that iodoform acts by inducing chemical changes in the toxic products of bacterial activity, a plausible explanation, inasmuch as we know that the constitutional manifestations of infective processes in general are not so much dependent upon the mere presence of microörganisms as upon the development of toxins. TREVES (*Lancet*, No. 3641, p. 1375) offers a contribution to this interesting subject, in which he reports the generous application of iodoform in powder within the peritoneal cavity in the course of abdominal operations, with results that appear not entirely unrelated to the use of the drug. The special utility of iodoform applied to tuberculous tissues is well known. In our appreciation of the utility of iodoform we must, however, not ignore its toxicity, but should always exercise the greatest care in its employment.

Cholera in France.—There is, unfortunately, good ground for believing that the public is being deceived by the suppression of news as to the existence of cholera in France. It is sufficiently alarming to learn that about a thousand deaths occurred from the cholera in Mecca in one day last week. But when we are assured that the disease has travelled so far west as France, and that in one week 562 cases, with 178 deaths, occcurred in Lorient, France, it is certainly time that immigration from France should be restricted, or scrutinized with profoundest care. A sailor on a ship from Nantes, France, died of cholera at Newcastle, England, some two weeks ago, and deaths have occurred at Malta under similar circumstances The epidemic has also appeared in Catalonia, Spain. The warning is all the more needed because all information as to the condition of the West Coast and the general spread of the disease throughout France is being rigidly suppressed. This mistaken policy arouses rather than quiets apprehension in the minds of the prudent.

Pernicious Anemia and Chlorosis in the Negro.—There is no evident reason why individuals of African descent should be less susceptible than members of the Caucasian race to the diseases characterized by qualitative and quantitative changes in the constitution of the blood; but on account of the absence in dark-skinned people of the pallor of the integument usually attendant upon these conditions, and the lack of other distinctive symptoms, the blood-examination is less commonly made in colored than in white persons. It is on this account, perhaps, that reports of cases of anemia in negroes are uncommon. Musser (*University Medical Magazine*, July, 1893, p. 770) records a case of pernicious anemia and one of chlorosis in colored persons. In the one case a fatal termination ensued; in the other, recovery followed the administration of a pill of ferric sulphate and potassium carbonate according to the formula of Blaud.

Edema of the Larynx Complicating Influenza.—Previously looked upon as of itself an insignificant affection, recent experience has taught us quite the contrary of influenza, while the complicating conditions have been of the widest diversity and fraught with great fatality. Affections of the respiratory tract have been especially common. A catarrhal condition of the larynx was almost universal. In some cases ulceration occurred, and in a small number edema has developed, necessitating tracheotomy. Two cases of edema of the larynx in the course of influenza are recorded by Cartez (*Rev. de Laryngol d' Otol., et de Rhinol.*, No. 12, 1893, p. 450), both in adults, one a male, the other a female. In both leeches and ice were applied over the larynx, and recovery ensued. In the second there was a history of previous syphilitic infection, with laryngeal manifestations, which, it is thought, acted as a predisposing cause.

REVIEWS.

GEOGRAPHICAL PATHOLOGY: AN INQUIRY INTO THE GEOGRAPHICAL DISTRIBUTION OF INFECTIVE AND CLIMATIC DISEASES. By ANDREW DAVIDSON, M.D., F.R.C.P. Ed., Late Visiting and Superintending Surgeon, Civil Hospital, and Professor of Chemistry, Royal College, Mauritius. 2 vols., 8vo, pp. 1005. New York: D. Appleton & Co., 1892.

IN this work the author has aimed to sketch the geographic distribution of infective and climatic diseases, and to trace the influence of temperature, rainfall, altitude, and soil-conditions on their prevalence, character and epidemic spread. Organic diseases of the heart, kidneys, and nervous system, which are not, as a rule, caused by infection and are not materially influenced by soil and climate, are not regarded as properly within the scope of the book, and are only occasionally mentioned. Endemic malarial fevers in various malarial countries are extensively considered, and very instructive charts, illustrating the characters which they assume in different countries, have been introduced. Typhoid fever, cholera, yellow fever, and influenza receive especial attention, and notes of other diseases of the class embraced by the author, usually proportionate to their local importance, supplement the former.

The author has considered his subject under four great geographic groups—namely, Europe, Asia, Africa, and America, with a convenient order of subdivision. For example, Europe is considered by three latitudinal divisions in twenty chapters. Each chapter of the book begins with a concise geographic description of the country in question, followed by remarks on climatology, including such points as mean monthly rainfall and temperature, a short section on vital statistics, and a more or less lengthy one on pathology. Chapter I,

which treats of Iceland and the Faröe Islands, fairly illustrates the comprehensiveness and the importance of the data collected, analyzed, and recorded in this book. Under the section of pathology, in this chapter, we have paragraphs on malaria, enteric fever, typhus fever, relapsing fever, diphtheria, croup, Asiatic cholera, dysentery, diarrhea, influenza, whooping-cough, smallpox, measles, scarlet fever, pneumonia, epidemic pneumonia, hepatitis, hydatids of the liver, diseases of the spleen, trismus neonatorum, carcinoma, rheumatic affections, scrofula, syphilis, leprosy. The special information to be gleaned from these paragraphs is that leprosy, formerly widely diffused in Iceland, is now rapidly dying out; syphilis is excessively rare, and of a mild type; pulmonary tuberculosis is seldom met with in natives; whilst measles has appeared only four times in the history of Iceland. Scarlet fever occurs only at rare intervals, and none of the eruptive fevers is endemic in the island; neither is whooping-cough endemic, nor does it show a tendency to spread, even when introduced into the country. Although there are numerous marshes among the inhabited districts, paroxysmal fevers are not endemic, and while diarrheas are comparatively rare, enteric fever is endemic, and often assumes an epidemic form; relapsing fever has never been seen, and epidemic, cerebro-spinal meningitis has been encountered only once.

While usually any one of the diseases enumerated is dismissed in a single paragraph, influenza fills something over two pages. Although the author declines to undertake to settle the dispute as to whether *influenza arctica*, so frequent in the Arctics, is a specific affection, closely allied to the epidemic disease, or should be regarded as a simple catarrh, arising from the climatic conditions peculiar to cold regions, the facts which he prefers to speak for him appear to indicate very strongly the contagious and transportable nature of epidemic influenza.

Thus, according to our author, "Influenza has often been observed to make its appearance immediately after the arrival of a foreign vessel, although the passengers and crew of such vessel may not have been suffering from the disease, and although influenza may not have been raging in the port or country from which it sailed.

"The outbreak of influenza in Iceland on the arrival of foreign vessels can only be explained on the assumption that the specific cause of the disease is transportable, but it does not follow that commercial intercourse is the only means by which this malady is diffused.

"Another remarkable circumstance in connection with the outbreaks of influenza in Iceland is the immunity from the disease enjoyed by strangers and recent arrivals, while very few of the natives escape."

It is impossible, in the short space allowable, to give any adequate review of this great work. We have quoted from the first chapter because it is short and fairly representative. These two volumes are replete from the first to the last chapter with a great mass of well-analyzed and condensed information of a trustworthy character, so desirable for the comprehensive and philosophic study of epidemic and infective diseases as they may be influenced by general climatic and telluric conditions, and yet usually so difficult and so laborious of acquisition. The great value of these two volumes is further enhanced by a very full table of contents and by a very complete cross-index.

On the whole, we believe that the aim of the author has been attained in a manner that will prove highly satisfactory to those who shall have occasion to consult these encyclopedic volumes, which, in our opinion, should be ranked with the very similar works of Hirsch and of Lambord.

In conclusion, we would most highly commend the judgment of the publishers in determining that such a valuable contribution to geographic pathology should issue from their press. The typographic excellence of this work is fully up to the high standard of these publishers.

ELEMENTS OF HUMAN PHYSIOLOGY. By ERNEST H. STARLING, M.D. Lond., M.R.C.P., Joint Lecturer on Physiology at Guy's Hospital, London, etc. With 100 illustrations. 12mo, pp. 437. Philadelphia: P. Blakiston, Son & Co., 1892.

THE importance of the branch of physiology in the curriculum of medical education cannot be overestimated, and need not here be dwelt upon. Suffice it to say, that a full and correct understanding of the subject is essential for successful practice in any department of medicine. He who lacks knowledge of structure and function can only be incompetent to treat their derangement. Books on physiology are not wanting. Of these we have numerous good ones, both in Continental languages and in English. The little volume before us may be assured a cordial welcome. It is characterized by accuracy of statement, and deals with its subject in a clear and easy style that is calculated to excite interest and hold attention. While the various subjects are discussed in a terse, concise manner, their usefulness has not been annihilated by the painful compression and abbreviation so common in elementary books of the day. The arrangement conforms to the usual one. Recent developments receive appropriate notice. The index is full. The mechanical details meet the requirements. The book is to be heartily recommended to those who wish to lay a strong groundwork in physiology.

DISEASES OF THE LUNGS, LIVER, AND KIDNEYS. By N. S. DAVIS, JR., A.M., M.D., Professor of the Principles and Practice of Medicine, Chicago Medical College, etc. No. 14 in the Physicians' and Students' Ready Reference Series. 8vo, pp. vii, 359. Philadelphia and London: The F. A. Davis Co., 1892.

WONDER must often arise as to what becomes of all the medical books published. Many can have but a limited circulation, and many more can attract but passing attention. We have before us a well-conceived and a well-written little volume, dedicated only to a consideration of the diseases of the lungs, heart, and kidneys, the *motif* for which, however, we must confess we scarcely appreciate. Just why only these three subjects should be considered together is not entirely clear, unless it be in response to an increasing tendency to specialism. There is no claim to originality, and in truth it can be said that the book contains little or nothing original. The subject-matter presented can, moreover, be found at least equally as well presented in

any of the recognized text-books on the practice of medicine. As already indicated, the several subjects are well and fairly fully considered. We fail, however, to find any reference to fibrinous bronchitis, to hydatids, sarcoma and tuberculosis of the kidney, and to floating kidney. The subjects of malformations and displacements generally seem completely ignored.

DISEASES OF THE SKIN, by CHARLES C. RANSOM, M.D., Assistant Dermatologist, Vanderbilt Clinic, New York. (THE STUDENTS' QUIZ SERIES. Edited by BERN B. GALLAUDET, M.D., Demonstrator of Anatomy and Clinical Lecturer on Surgery, College of Physicians and Surgeons, New York. Volume 8.) Pocket size, 12mo., 192 pages, 28 illustrations. Limp cloth, $1.00. Philadelphia: Lea Brothers & Co., 1893.

WE have looked over this little volume, and the thought that arises in our mind is: For what purpose was it written? Presumably to aid the student just prior to his examination at the college or hospital, but we are firmly of the opinion that all books of the character of Quiz's, or "questions and answers," fail completely to give the knowledge the student ought to have. The present book is no exception, and while the subject-matter is equal in merit to the several quiz's on this subject that have recently appeared, it offers no special attraction. The treatment is singularly neglected, and with some diseases is altogether wanting. We note that the formula of Lassar's paste is inaccurately given, while the directions for its use are different from those advised by the leading dermatologists. The nomenclature and the classification are both good, the latter being that of the American Dermatological Association.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Forty-fourth Annual Meeting, held at Milwaukee, Wis., June 6, 7, 8, and 9, 1893.

(Continued from page 28.)

SECTION ON MATERIA MEDICA AND PHARMACY.

DR. FRANK WOODBURY, of Philadelphia, delivered the President's Address. The subject of his remarks was "Scientifically Prepared Remedies Essential to a Rational Therapeutics." He said that the daily use of instruments of precision in clinical medicine, and the study of pathology, make the demand an imperative one for greater precision in therapeutic methods. Haphazard prescribing and vulgar empiricism must yield to scientific pharmacology and rational therapeutics; these, however, depend not only upon accuracy of dosage of skilfully selected remedies, but also upon uniformity in the composition and physiologic activity of such remedial agents. The standardization of pharmaceutic preparations is as important to the physician as is the uniform composition of test-solutions to the chemist. Accuracy of dosage requires that the amount, or proportion, of active principles of any given remedy shall be uniform, in order to properly gauge its effects.

The modern physician is free from the dictum of any school in the choice or application of remedies. The ancient, assumed laws of cure have been outgrown, and it is impossible that they shall ever again be considered of sufficient importance to divide physicians into sects or schools of practice. It is true that names survive the things and circumstances that called them into being; and if some sectarian physicians may, for reasons best known to themselves, profess to represent certain schools, it is well known that they use the same text-books, read the same medical journals, get their medicines from the same sources, as others. Honest medical sectarianism could scarcely survive the revelations of modern biologic science, that all diseased processes are merely normal functions under abnormal conditions; and that such conditions are physical and natural and not spiritual or supernatural. Independence of the voice of authority other than that of trained experience and freedom to reasonably apply any scientific fact to the alleviation of human suffering, are the boasts of modern medicine and the criterion of the scientific physician. There can be only one best way to treat a patient suffering with any given disease, and it is the aim of scientific medicine to discover and apply that method, without reference to any hypothetic law of cure.

The hypodermatic tablet illustrates the scientific feature of precision of dosage in its most perfect form, while the ordinary soluble tablets have not only accuracy of administration, but convenience and cheapness in their favor. It cannot be denied that this new departure in pharmacy is working adversely to the interests of the retail pharmacist and, in the end, will not prove favorable to the physician, because it encourages him to dispense his own prescriptions and almost inevitably drives him into routine practice. It is attended by the practical disadvantage, which the physician should seriously consider, of depriving him of any documentary evidence, or, indeed, any evidence beyond his own testimony, as to the identity or character of the remedy administered, in case of a suit for homicide by misadventure, or for damages for malpractice when it is claimed that a wrong medicine has been administered. The written prescription is a safeguard, in such a case, that the physician would be glad to possess.

The mutual benefits derived from the separation of pharmacy from the practice of medicine were briefly mentioned. Physicians and pharmacists were urged to become better acquainted with each other, so as to increase respect and avoid misunderstanding.

The interests of the scientific pharmacist and the scientific physician do not conflict, but supplement each other.

PROF. J. M. GOOD, of St. Louis, Mo., read a paper entitled "Shall the Practice of Medicine and the Practice of Pharmacy continue Distinct and Separate?" and DR. L. CH. BOISLINIERE, of St. Louis, Mo., read one entitled "The Physician and Pharmacist." The position taken in each was that pharmacists, as a class, are careful, painstaking, and well qualified to stand between the prescriber and the patient, or *vice versa;* and occasions may arise when they are of great utility in this position.

At the second session, PROF. C. LEWIS DIEHL read a communication on the "National Formulary" of the American Pharmaceutical Association, which physicians would find very valuable if they were more familiar with its contents. The reliability of the formulas has been re-

cently tested by a Committee on Revision, which will defer its final report until after the appearance of the new U. S. Pharmacopeia. A preliminary report, however, was made to the American Pharmaceutical Association in which the reliability of the formulas was indorsed, with few exceptions of no importance. The physicians of the American Medical Association are earnestly asked to give this Formulary their favorable consideration, and the Association is urged to take such action as may be conducive to the adoption and use of the National Formulary by practising physicians throughout the land.

PROF. EDGAR L. PATCH, of Boston, Massachusetts, contributed an interesting paper entitled "A Few Incompatibles often Overlooked by the Physician, and some Prescription Controversies." The prescriptions were in *fac-simile*, and might readily give rise to controversy as to their exact reading, owing to careless chirography, actual mistakes and omissions, and abbreviations. The necessity of a written prescription in place of a verbal one was pointed out, and it was insisted that it should be written in good Latin, to prevent mistake and to assist in carrying out the intention of the physician. Many of the conditions affecting the therapeutic effect or physical appearance of preparations may be overcome by greater care in selecting drugs and by specifying exactly what preparation is desired by the physician.

The prescription may disappoint from a number of reasons: 1. Because the patient does not follow directions; 2. Because drugs cannot benefit the case; 3. Because the dosage is incorrect; 4. Because a wrong remedy is selected; 5. Because the remedy is deficient in strength or is over-active; or 6. Because the vices or habits of the patient neutralize or abort treatment.

PROF. J. M. GOOD made a verbal communication on "Some Additional Incompatibles in Prescribing."

PROF. FRANK RYAN, of Philadelphia, read a paper on "Cocillana," which is the bark of an undetermined species of Guarea.

The chief therapeutic value of this drug is in diseases of the respiratory tract, especially bronchitis in its subacute or chronic stage. It is a stimulating expectorant, free from nauseating or depressing effect. The dose of the tincture is from thirty minims to two fluidrams; of the fluid extract, from five to twenty minims. It has an aromatic odor and bitter taste; and in the form of fluid extract may, with advantage, be combined with syrup.

DR. F. E. STEWART read a paper, by title, "The Waters of the Glen Springs, Watkins Glen, New York."

A paper on "The Treatment of Chlorotic Anemia," by Dr. RALPH STOCKMAN, of Edinburgh, was also read by title.

A discussion upon the United States Pharmacopeia was opened by PROF. C. LEWIS DIEHL, of the Committee on Revision. He announced that the new Pharmacopeia would be issued early in the autumn, as it is rapidly approaching completion. No radical departure from the preceding revision is contemplated, but the metric system has been adopted and is employed exclusively in the various formulæ in place of parts by weight. In the directions for making fluid extracts parts by volume will be substituted for the sake of uniformity. There will be introduced a number of new drugs and preparations, including several elixirs.

In addition to methods for standardizing opium and cinchona, there will be given methods for standardizing preparations of these drugs and also those of nux vomica.

PROF. ALBERT B. PRESCOTT expressed great confidence in the value of the revision and commended it to the attention of the physicians of the United States as a book of habitual reference. It is the code of utility, and its observance belongs in a true sense to the Code of Ethics. If the "Codex Medicamentarius" were to receive, in the medical press, some share of the attention that has been devoted to the ethical code, medical literature might gain in point of practical benefit, possibly in scientific purpose. Moreover, the Pharmacopeia is a work for professional unification; it brings together not only the pursuits of medicine and pharmacy, but the researches of biology, chemistry, and hygiene.

On motion of PROF. DIEHL, the following resolution was adopted and directed to be laid before the General Association for approval:

Resolved, That the Section on Materia Medica and Pharmacy of the American Medical Association respectfully recommends that the next edition of the Pharmacopeia, soon to be issued, be at once adopted by physicians in prescribing and pharmacists in compounding. It also advises the general adoption by physicians and pharmacists of the *National Formulary* issued by the American Pharmaceutical Association, and that the teaching medical and pharmaceutic colleges adopt these works as text-books.

The following resolutions were presented by PROF. RYAN and adopted:

WHEREAS, It appears to be a growing practice for some physicians to dispense their own medicines; therefore,

Resolved, That it is the opinion of this Section that the practice referred to, except in case of emergency, is not conducive to the better interests of the practice of medicine, nor is the welfare of the patient best served by this means of medication.

Resolved, That the Section on Materia Medica and Pharmacy of the American Medical Association wishes to discourage the practice, and asks its members to use their influence to that end.

The following resolution was offered and adopted, with a view of exciting greater interest among physicians and making the future meetings of the Section more valuable:

Resolved, That, at the future annual meetings of the Section on Materia Medica and Pharmacy, special efforts shall be made to have a scientific exhibition of new remedies and of such drugs and pharmaceutic preparations as will be of an educational character, such preparations to be strictly in accordance with the Code of Ethics and to be accompanied by such lectures or descriptive papers as shall enhance the value of the proceedings and lead to instructive discussion; the same to be approved by the local Committee of Arrangements of the American Medical Association.

The officers of the Section were reëlected unanimously.

NEWS ITEMS.

A Standing Committee on Cholera.—The following circular has been issued by the College of Physicians of Philadelphia:

PHILADELPHIA, June 20, 1893.

The Standing Committee on Cholera of the College of Physicians earnestly desires to secure the organized cooperation of the physicians of Philadelphia in the efforts, in which the whole country is interested, to prevent the appearance of cholera among us in the coming summer.

A general plan has been adopted by which physicians in Philadelphia can coöperate with this Committee—and through them with the Board of Health and the other city authorities—in improving the sanitation of the city in every respect.

Physicians in each ward from the number of those volunteering for this public service will be asked to observe especially—as they may readily do in their daily rounds—the condition of the streets, alleys, sewers, and gutters, and to report to this Committee upon the performance and thoroughness of the work of the street-cleaning contractors, etc. It is also desired that they should observe, as far as possible, the sanitary condition of dwellings, especially noting nuisances which need to be immediately remedied. If cholera spread rapidly in Europe they should ascertain so far as they may be able whether there have been any recent arrivals of immigrants likely to have come from or to have passed through infected places.

Reports should be immediate, explicit, and concise. Necessary blanks for the purpose will be supplied by the Committee.

If cholera should appear in Philadelphia or in any neighboring city, further organization will, of course, be necessary. Ambulance-corps and nurse-corps will then be organized by the Committee, as well as a corps for disinfection service. Under such circumstances it will become necessary to report at once to this Committee, as well as to the Board of Health, every case of acute diarrheal disease as a "suspect."

The Committee, in accordance with the instructions of the College, waited upon the Mayor and city authorities and offered their services, both advisory and executive. They are glad to be able to state that this offer was well received by the City Government, which approved of the plan outlined in this circular, and that the Committee was urged to report upon all matters of sanitation, paving, or general cleanliness in which changes may be desirable. The municipal authorities have promised that criticisms of these matters on the part of the Committee will receive the most careful and prompt attention.

Physicians willing to coöperate with the Committee in this important matter are requested to at once forward their names and addresses to the Secretary.

(Signed) E. O. SHAKESPEARE, M.D., *Chairman.*
J. M. DACOSTA, M.D.,
H. C. WOOD, M.D.,
J. C. WILSON, M.D.,
F. P. HENRY, M.D.,
J. H. MUSSER, M.D.,
J. K. MITCHELL, M.D., *Secretary,*
211 S SEVENTEENTH ST.

Death of James McCann, M.D., LL.D.—Dr. McCann was born in 1836, in Penn Township, Allegheny County, Pa. He began the study of medicine in 1858 and graduated from the Medical Department of the University of Pennsylvania in 1863 and immediately entered the medical service of the army as assistant-surgeon of the Fifth Pennsylvania Volunteers. He continued in this service until the close of the war, when he returned to Pittsburg and began the practice of medicine with Dr. W. C. Reiter. Two years later he received the appointment of surgeon to the Marine Hospital, and the connection with Dr. Reiter was soon afterward dissolved.

For twenty years he was one of the surgeons of the Pennsylvania, the Allegheny Valley, and other railroads.

He was an active and influential member of the Pittsburg Free Dispensary from its inception, of the Board of Health for many years, of the Allegheny County Medical Society, of the State Medical Society, of the American Medical Association, of the American Surgical Association, and of the American Association of Obstetricians and Gynecologists; but, owing to ill health, he was never able to attend a session of the last.

He organized the first medical college in Western Pennsylvania, in which, in September, 1886, he was elected to the chair of Professor of the Principles and Practice of Surgery, which position, notwithstanding his failing health, and in defiance of bodily suffering, he filled until a few months prior to his death. He was unanimously nominated for appointment as "Emeritus Professor," but he died, June 13, 1893, before this action could be confirmed by the Board of Trustees of the University.

Louisiana State Medical Society.—At the recent meeting of the Louisiana State Medical Society Dr. A. B. Miles, of New Orleans, was elected President; Dr. D. R. Fox, Vice-President First Congressional District; Dr. Charles Chassaignac, Vice-President Second Congressional District; Dr. J. D. Hanson, Vice-President Third Congressional District; Dr. C. D. Orvens, Vice-President Fourth Congressional District; Dr. A. W. Jones, Vice-President Fifth Congressional District; Dr. J. W. Duprée, Vice-President Sixth Congressional District; Dr. P. B. McCutcheon, of New Orleans, Recording Secretary; Dr. A. G. Friedrichs, of New Orleans, Corresponding Secretary; and Dr. W. E. Parker, of New Orleans, Treasurer.

American Association of Genito-Urinary Surgeons.—At the meeting of the American Association of Genito-Urinary Surgeons, held at Harrogate, Tenn., June 20 and 21, 1893, the following officers were elected for the ensuing year: President, Dr. George Chismore, of San Francisco; Vice-President, Dr. L. Bolton Bangs, of New York; Secretary and Treasurer, Dr. John A. Fordyce, of New York; Member of the Council-at-Large, Dr. R. W. Taylor, of New York.

Professor Peter, a well known French clinician of Paris, and a former pupil of Trousseau, died at Paris, on June 9th, of cerebral hemorrhage; he was sixty-eight years old.

Dr. J. Madison Taylor has been elected Professor of Pediatrics in the Medico-Chirurgical College.